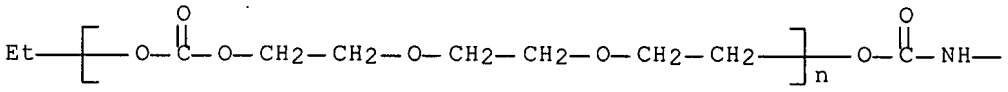
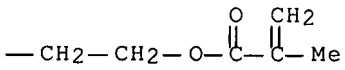
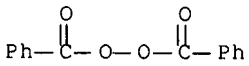
PAGE 1-A



PAGE 1-B



IT 94-36-0, Benzoyl peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polymerizable** compound and solid **polymer** **electrolyte** using same for **batteries** and elec. double layer capacitors)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsui Chem Inc	1999			JP 11140176 A	HCAPLUS
Nippon Oil Co Ltd	1996			JP 08295715 A	HCAPLUS
Takeuchi, M	1997			US 5597661 A	

L135 ANSWER 21 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:819240 HCAPLUS Full-text
DN 133:351062
TI Covalently and physically crosslinked **polymer** network **polyelectrolytes** and production method thereof
IN Yamamoto, Toru; Murata, Toshihide
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000319531	A	20001121	JP 1999-134821	19990514 <--
PRAI JP 1999-134821		19990514 <--		

AB Title **polyelectrolytes** comprise covalently and phys. crosslinked **polymer** networks and charge carriers and are useful for nonaq. **electrolyte** secondary **batteries**. Thus, a thermosetting resin precursor comprising oligomeric epoxy resin **acrylate** 50, pentaerythritol **triacrylate** 8, and benzoyl peroxide 2 part was mixed with 5 parts **acrylonitrile-methacrylic** acid **copolymer** (mol ratio 97:3) 15, LiBF4 20, ethylene carbonate 100, and propylene carbonate 50 parts and cured at 120° for 60 min between two stainless steel plates to give a

polyelectrolyte giving a lithium battery with good heat resistance and high-rate discharge and capacity retaining characteristics.

IC ICM C08L0101-16
ICS C08J0007-00; H01B0001-06; H01M0010-40

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 52

ST polyelectrolyte covalently phys crosslinked nonaq secondary battery

IT Epoxy resins, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(acrylates, alicyclic, crosslinked with pentaerythritol triacrylate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Epoxy resins, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(crosslinked with pentaerythritol triacrylate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Secondary batteries
(lithium; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Polyurethanes, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(polyester-, acrylic; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Polyesters, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(polymers with acrylic acid hydroxy derivs. and tolylene diisocyanate; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Battery electrolytes
Crosslinking catalysts
Electrolytes
Polyelectrolytes
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Interpenetrating polymer networks
(semi-interpenetrating; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Plastics, uses
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(thermoplastics; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT Plastics, uses
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(thermosetting; preparation of covalently and phys. crosslinked

polymer network polyelectrolytes useful for batteries)

IT 3524-68-3
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 94-36-0, Benzoyl peroxide, uses 3849-34-1, Butyl peroxide 24650-42-8
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 90076-65-6 155812-81-0
RL: DEV (Device component use); USES (Uses)
(electrolyte; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

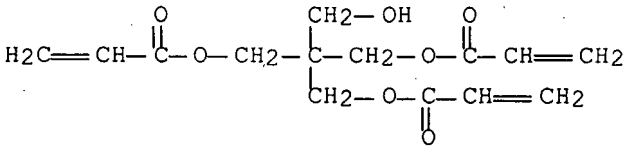
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate
RL: DEV (Device component use); USES (Uses)
(polar solvent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 79-10-7DP, Acrylic acid, esters, polymers 79-41-4DP, Methacrylic acid, esters, polymers with pentaerythritol triacrylate 3524-68-3DP, Pentaerythritol triacrylate, polymers with (meth) acrylates 26471-62-5DP, Tolylene diisocyanate, polymers with acrylic acid hydroxy derivs. and polyesters 101465-21-8P 129914-67-6P, Polyethylene glycol diacrylate-trimethylolpropane triacrylate copolymer 305834-74-6P 305834-75-7P
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

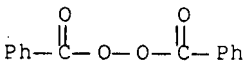
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 24980-62-9, Acrylonitrile -vinyl acetate copolymer 25014-41-9, Acrylonitrile homopolymer 25214-69-1, Acrylic acid-acrylonitrile copolymer 25322-68-3 25749-57-9, Acrylonitrile-methacrylic acid copolymer 26778-26-7, Acrylamide-ethylene oxide copolymer
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 3524-68-3
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

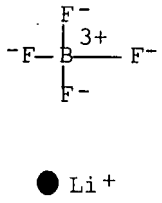
RN 3524-68-3 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



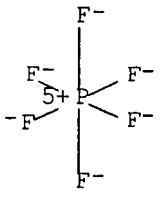
IT 94-36-0, Benzoyl peroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



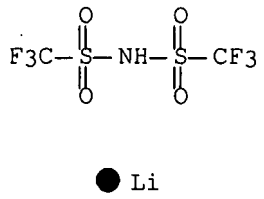
IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 90076-65-6 155812-81-0
RL: DEV (Device component use); USES (Uses)
(**electrolyte**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



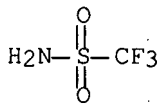
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



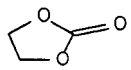
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



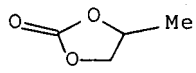
RN 155812-81-0 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(polar **solvent**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



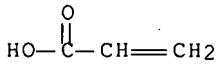
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



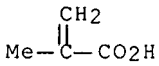
IT **79-10-7DP**, **Acrylic** acid, esters, **polymers**
79-41-4DP, **Methacrylic** acid, esters, **polymers**
with pentaerythritol **triacrylate** **3524-68-3DP**,
Pentaerythritol **triacrylate**, **polymers** with (meth) **acrylates** **101465-21-8P** **129914-67-6P**,
Polyethylene glycol **diacrylate**-trimethylolpropane **triacrylate copolymer** **305834-74-6P**
305834-75-7P

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

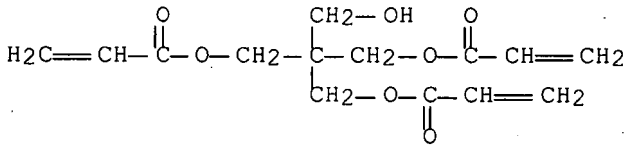
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



RN 79-41-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



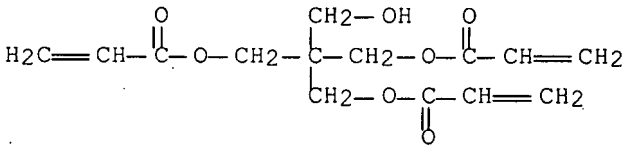
RN 3524-68-3 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



RN 101465-21-8 HCAPLUS
CN 2-Propenoic acid, 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with 2-propenenitrile (9CI) (CA INDEX NAME)

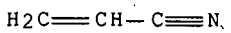
CM 1

CRN 3524-68-3
CMF C14 H18 O7



CM 2

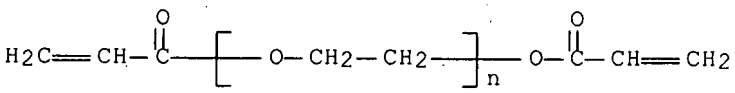
CRN 107-13-1
CMF C3 H3 N



RN 129914-67-6 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-ethyl-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, polymer with α-(1-oxo-2-propen-1-yl)-ω-[(1-oxo-2-propen-1-yl)oxy]poly(oxy-1,2-ethanediyl) (CA INDEX NAME)

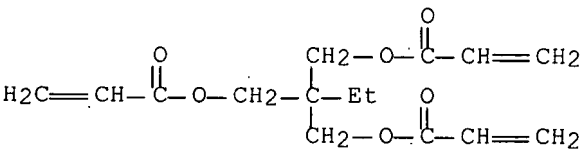
CM 1

CRN 26570-48-9
CMF (C2 H4 O)n C6 H6 O3
CCI PMS



CM 2

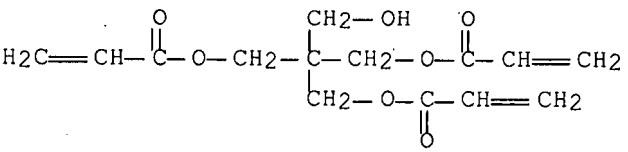
CRN 15625-89-5
CMF C15 H20 O6



RN 305834-74-6 HCAPLUS
CN 2-Propenoic acid, 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 3524-68-3
CMF C14 H18 O7



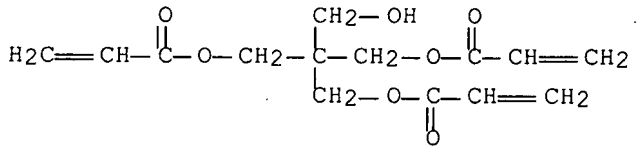
CM 2

CRN 75-21-8
CMF C2 H4 O

RN 305834-75-7 HCAPLUS
CN Hexanedioic acid, compd. with 1,6-hexanediamine (1:1), polymer with 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 3524-68-3
CMF C14 H18 O7

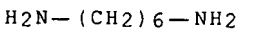


CM 2

CRN 3323-53-3
CMF C6 H16 N2 . C6 H10 O4

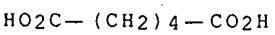
CM 3

CRN 124-09-4
CMF C6 H16 N2



CM 4

CRN 124-04-9
CMF C6 H10 O4



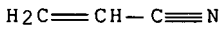
IT 25214-69-1, Acrylic acid-acrylonitrile copolymer 25749-57-9, Acrylonitrile-methacrylic acid copolymer
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)

(preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

RN 25214-69-1 HCAPLUS
CN 2-Propenoic acid, polymer with 2-propenenitrile (CA INDEX NAME)

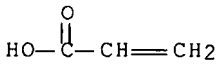
CM 1

CRN 107-13-1
CMF C3 H3 N



CM 2

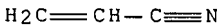
CRN 79-10-7
CMF C3 H4 O2



RN 25749-57-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 2-propenenitrile (CA INDEX NAME)

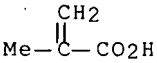
CM 1

CRN 107-13-1
CMF C3 H3 N



CM 2

CRN 79-41-4
CMF C4 H6 O2



L135 ANSWER 22 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:686820 HCAPLUS Full-text
DN 133:284087
TI High **polymer** solid **electrolyte**, its manufacture and electrochemical device

PAT-NO: JP02000319531A

DOCUMENT-IDENTIFIER: JP **2000319531** A

TITLE: HIGH MOLECULAR ELECTROLYTE AND ITS PRODUCTION

PUBN-DATE: November 21, 2000

INVENTOR-INFORMATION:

NAME	COUNTRY
YAMAMOTO, TORU	N/A
MURATA, TOSHIHIDE	N/A

ASSIGNEE-INFORMATION:

NAME	COUNTRY
MATSUSHITA ELECTRIC IND CO LTD	N/A

APPL-NO: JP11134821

APPL-DATE: May 14, 1999

INT-CL (IPC): C08L101/16, C08J007/00 , H01B001/06 , H01M010/40

ABSTRACT:

PROBLEM TO BE SOLVED: To obtain a high molecular electrolyte having high molecular skeletons having covalent crosslinks and physical crosslinks and at least a charge carrier and capable of presenting a lithium cell excellent in heat resistance, high rate discharging characteristics and cycle characteristics with little residual stress.

SOLUTION: The objective electrolyte is obtained by constituting the electrolyte with mutually crosslinked high molecular skeletons having at least a high polymer skeleton having covalent bond crosslinks and one having physical crosslinks and a charge carrier, where preferably the high molecular skeletons formed by covalent bonds are mutually physically crosslinked, or a mixture of high molecular skeletons preferably formed of covalent crosslinks (preferably, the high molecular skeleton has at least one species of a vinyl group, an epoxy group, an ether group, an amino group and a urethane group in the main chain) and physical crosslinks (preferably the high molecular skeleton is an acrylonitrile homopolymer, an acrylonitrile-vinyl acetate copolymer or the like).

(19)日本国特許庁（ＪＰ）　(12)公開特許公報（Ａ）　(11)特許出願公開番号
特開2000－319531
（P2000－319531A）
(43)公開日　平成12年11月21日(2000.11.21)

(51)Int.Cl.'	識別記号	ＦＩ		テーマコード'（参考）
Ｃ０８Ｌ 101/16		Ｃ０８Ｌ 101/00		４Ｆ０７３
Ｃ０８Ｊ 7/00	３０４	Ｃ０８Ｊ 7/00	３０４	４Ｊ００２
Ｈ０１Ｂ 1/06		Ｈ０１Ｂ 1/06	Ａ	５Ｇ３０１
// Ｈ０１Ｍ 10/40		Ｈ０１Ｍ 10/40	Ｂ	５Ｈ０２９

審査請求　未請求　請求項の数10　ＯＬ　（全 8 頁）

(21)出願番号　特願平11－134821

(22)出願日　平成11年５月14日(1999.5.14)

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(72)発明者　村田　年秀
大阪府門真市大字門真1006番地　松下電器産業株式会社内
(74)代理人　100072431
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最終頁に続く

(54)【発明の名称】　高分子電解質およびその製造法

(57)【要約】
【課題】　電池に耐熱性、高率放電特性およびサイクル特性をバランスよく付与するゲル電解質を得ること。
【解決手段】　熱硬化性樹脂および熱可塑性樹脂の混合物からなり、熱硬化性樹脂高分子が架橋し、熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と前記熱硬化性樹脂高分子とが絡み合っている高分子電解質。

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【特許請求の範囲】

【請求項1】　共有結合架橋と物理架橋とを有する高分子骨格と、電荷担体とを少なくとも有することを特徴とする高分子電解質。

【請求項2】　共有結合架橋により形成された高分子骨格が、互いに物理架橋してなることを特徴とする請求項1記載の高分子電解質。

【請求項3】　共有結合架橋により形成された高分子骨格と、物理架橋により形成された高分子骨格との混合物であることを特徴とする請求項1記載の高分子電解質。

【請求項4】　共有結合架橋により形成される高分子骨格が、主鎖にビニル基、エポキシ基、エーテル基、アミド基およびウレタン基よりなる群から選択される少なくとも1種を有する請求項1～3のいずれかに記載の高分子電解質。

【請求項5】　物理架橋を形成する高分子骨格が、アクリロニトリルホモポリマー、アクリロニトリル－酢酸ビニル共重合体、アクリロニトリル－アクリル酸共重合体、アクリロニトリル－メタクリル酸共重合体、ポリフッ化ビニリデン、フッ化ビニリデン－ヘキサフルオロプロピレン共重合体、ポリエーテルおよびエチレンオキサイド共重合体よりなる群から選択される少なくとも1種からなる請求項1または2記載の高分子電解質。

【請求項6】　（a）共有結合架橋を形成する高分子骨格を構成するモノマーおよび／もしくはプレポリマー、架橋剤ならびに重合開始剤に、物理架橋を形成する高分子骨格を構成するポリマー、極性溶媒および電解質塩を添加、混合する工程、および（b）得られる混合物を加熱および冷却することによって、架橋を有する熱硬化性樹脂を形成し、かつ同時に熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と熱硬化性樹脂高分子との絡み合いを形成する工程を含む熱硬化性樹脂および熱可塑性樹脂の混合物からなる高分子電解質の製造方法。

【請求項7】　前記工程（b）において、前記混合物に紫外線を照射することによって共有結合架橋を有する高分子骨格を形成した後、加熱、冷却することによって物理架橋を有する高分子骨格を形成する請求項5記載の高分子電解質の製造方法。

【請求項8】　前記工程（b）において、物理架橋を有する高分子骨格を形成した後、紫外線照射または加熱によって物理架橋を有する高分子骨格を形成する請求項5記載の高分子電解質の製造方法。

【請求項9】　前記混合物を2枚の平行板間に配置して前記工程（b）を行う請求項5～7のいずれかに記載の高分子電解質の製造方法。

【請求項10】　前記混合物を正極板および負極板に塗布または含浸して前記工程（b）を行い、ついで正極板および負極板を張り合わせる請求項5～7のいずれかに記載の高分子電解質の製造方法。

【発明の詳細な説明】

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【0001】

【発明の属する技術分野】本発明は、非水電解質二次電池の高分子電解質およびその製造方法に関する。

【0002】

【従来の技術】近年、ポータブル機器やコードレス機器の進歩発展に伴い、その電源である電池の長時間駆動を実現させるために、より一層の高エネルギー密度が要求されている。この要求に対して、負極に炭素材料、正極にコバルト酸リチウムを用いたリチウムイオン二次電池や、負極に水素吸蔵合金を用いたニッケル・水素蓄電池が多く使用されている。特に、携帯電話やノート型パソコンに用いる電池には、さらなる軽量化および薄型化が強く要求され、高分子ゲル電解質を用いたポリマー電池が注目を集めている。このポリマー電池における電解質として高分子ゲルのような高分子電解質を用いると、液漏れの心配がなく、金属缶の代わりにアルミニウムをラミネートした樹脂フィルムなどを使用することができる。したがって、従来の金属缶を用いないため軽量化、薄型化が可能となる。また、充電時にリチウムのデンドライトの生成が起こりにくく、信頼性の面でも優れている。一方、電極活物質と電解質との界面抵抗が従来のリチウムイオン二次電池に比べて少し高いため、高率放電特性、特に低温における高率放電特性が問題となる。

【0003】前述の、高分子高分子電解質としては、例えば直鎖状のフッ化ビニリデン－ヘキサフルオロプロピレン共重合体を、リチウム塩を溶解したエチレンカーボネートやジメチルカーボネートなどの極性溶媒で膨潤させたものが用いられている（例えば米国特許第5，296，318号または第5，456，000号）。この高分子高分子電解質においては、高分子同士が物理的に絡み合っている。

【0004】しかし、前記分子同士の絡み合い（物理架橋）は、ファンデアワールス力やイオン結合によるものであるため、結合強度が低く、耐熱性において問題がある。さらに、可塑剤の抽出やエージングといった工程が必要であるという問題もある。　一方、このような問題を解決するために、分子間を物理的な絡み合いでなく、化学的な共有結合をもって架橋する化学架橋ゲルが検討されている（例えば、特開平5－288213号および特開平5－67476号各公報）。しかし、このような共有結合架橋を有する化学ゲルは、分子同士が絡み合った物理架橋ゲルに比して耐熱性が高く、エージング工程も不要といった利点を有する反面、機械的強度が低く脆いという問題があり、また保液量が少なく、高率特性に劣るという欠点を有している。

【0005】また、共有結合架橋を有する化学ゲルの製造方法としては、ジアクリル酸エステルなどの3次元架橋が可能な高分子を構成する組成（プレポリマー、モノマーおよび重合開始剤）および、リチウム塩を加え極性溶媒溶液中に分散させた後、光もしくは放射線の照射、

または加熱などにより重合反応を開始させ、共有結合架橋を形成する方法が提案されている（例えば、特開平３－２０７７５２号公報）。この製造方法では、粘度の低い低分子溶液で扱えるため作業性に優れるが、得られる高分子ゲルの機械的強度が低いため、電極間での短絡を生じやすい。また、硬化時に収縮を生じ、残留応力によってサイクル特性が低下するという問題も有している。そこで、近年、共有結合架橋の内に直鎖状の熱可塑性樹脂を混合した系が考え出され、両者の欠点を補う試みもなされている（例えば、特開平８－２２５６２６号公報）。

【０００６】

【発明が解決しようとする課題】しかし、単なる複合系では保液性および機械的強度にやや劣り、製造時の短絡、さらにはサイクル特性や高率放電特性の点で問題が残っている。以上のような事実に鑑み、本発明の目的は、保液性および機械的強度が高く、かつ電池に適用した場合に優れた高率放電特性およびサイクル特性を発揮しうる高分子電解質を得ることにある。

【０００７】

【課題を解決するための手段】本発明は、共有結合架橋と物理架橋とを有する高分子骨格と、電荷担体とを少なくとも有することを特徴とする高分子電解質に関する。このとき、共有結合架橋により形成された高分子骨格が、互いに物理架橋してなるのが好ましい。また、共有結合架橋により形成された高分子骨格と、物理架橋により形成された高分子骨格との混合物であるのが好ましい。前記共有結合架橋により形成される高分子骨格は、主鎖にビニル基、エポキシ基、エーテル基、アミド基およびウレタン基よりなる群から選択される少なくとも１種を有するのが好ましい。前記物理架橋を形成する高分子骨格は、アクリロニトリルホモポリマー、アクリロニトリル－酢酸ビニル共重合体、アクリロニトリル－アクリル酸共重合体、アクリロニトリル－メタクリル酸共重合体、ポリフッ化ビニリデン、フッ化ビニリデン－ヘキサフルオロプロピレン共重合体、ポリエーテルおよびエチレンオキサイド共重合体よりなる群から選択される少なくとも１種からなるのが好ましい。

【０００８】さらに、本発明は、（ａ）共有結合架橋を形成する高分子骨格を構成するモノマーおよび／もしくはプレポリマー、架橋剤ならびに重合開始剤に、物理架橋を形成する高分子骨格を構成するポリマー、極性溶媒および電解質塩を添加、混合する工程、および（ｂ）得られる混合物を加熱および冷却することによって、架橋を有する熱硬化性樹脂を形成し、かつ同時に熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と熱硬化性樹脂高分子との絡み合いを形成する工程を含む熱硬化性樹脂および熱可塑性樹脂の混合物からなる高分子電解質の製造方法にも関する。

【０００９】前記工程（ｂ）においては、前記混合物に紫外線を照射することによって共有結合架橋を有する高分子骨格を形成した後、加熱、冷却することによって物理架橋を有する高分子骨格を形成するのが好ましい。前記工程（ｂ）においては、物理架橋を有する高分子骨格を形成した後、紫外線照射または加熱によって物理架橋を有する高分子骨格を形成するのが好ましい。　この場合、前記混合物を２枚の平行板間に配置して前記工程（ｂ）を行ってもよい。また、前記混合物を正極板および負極板に塗布または含浸して前記工程（ｂ）を行い、ついで正極板および負極板を張り合わせるのが好ましい。

【００１０】

【発明の実施の形態】本発明者らは、上述の課題を解決するために鋭意検討した結果、熱硬化性樹脂および熱可塑性樹脂の混合物からなり、熱硬化性樹脂高分子が共有結合架橋し、その間をぬって熱可塑性樹脂同士が絡み合っている物理架橋を形成することにより、共有結合架橋を有する高分子単独からなる高分子電解質、および分子間の絡み合い（物理架橋）を有する高分子単独からなる高分子電解質の欠点を補うことができることを見出した。

【００１１】本発明の高分子電解質を構成する分子内共有結合架橋を有する熱硬化性樹脂としては、一般的な熱硬化性樹脂であれば特に制限はない。このような熱硬化性樹脂としては、主鎖にアクリロニトリル基、アクリレート基、メタクリレート基、エポキシ基、エーテル基、アミド基およびウレタン基よりなる群から選択される少なくとも１種の結合基を有するものが挙げられる。すなわち、フェノール樹脂、ユリア樹脂、メラミン樹脂、不飽和ポリエステル樹脂、アルキド樹脂、エポキシ樹脂、ポリエーテル樹脂、ケイ素樹脂、ウレタン樹脂などが挙げられる。なかでも、イオン伝導度が高く、保液性の高さという点から、エーテル基を有するポリエチレンオキサイド樹脂であるのが好ましい。

【００１２】一方、分子間で絡み合う高分子としては、一般的な熱可塑性樹脂であれば特に制限はないが、イオン伝導度および保液性の高さ、さらには難燃性という点から、アクリロニトリルホモポリマー、アクリロニトリル－酢酸ビニル共重合体、アクリロニトリル－アクリル酸共重合体、アクリロニトリル－メタクリル酸共重合体、ポリフッ化ビニリデン、フッ化ビニリデン－ヘキサフルオロプロピレン共重合体、ポリエーテルおよびエチレンオキサイド共重合体よりなる群から選択される少なくとも１種であるのが好ましい。なかでも、イオン伝導度および難燃性という点から、アクリロニトリル系ポリマーであるのが好ましい。

【００１３】また、本発明の高分子電解質は、前述の熱硬化性樹脂および熱可塑性樹脂の混合物からなるが、非収縮性、保液性および機械的強度という点から、前記混合物の１０～８０重量％が熱硬化性樹脂であるのが好ま

しい。さらには、40～70重量%が熱硬化性樹脂であるのが好ましい。

【0014】このようにして得られたゲル電解質を、コーン・プレート型粘弾性測定装置を用いて各周波数における複素弾性率（E*（ω））を測定し、logωに対する弾性率の実数部（logE'（ω））をプロットしたところ、ゴム状領域において2段のプラトーが認められた。そのプラトーの高さから1つ目のプラトーは熱可塑性樹脂の物理架橋によるもの、2つ目のプラトーは熱硬化性樹脂の共有結合架橋によるものと考えられる。

【0015】つぎに、本発明は、（a）共有結合架橋を形成する高分子骨格を構成するモノマーおよび／もしくはプレポリマー、架橋剤ならびに重合開始剤に、物理架橋を形成する高分子骨格を構成するポリマー、極性溶媒および電解質塩を添加、混合する工程、および（b）得られる混合物を好ましくは90℃以上で加熱および0℃以下で冷却することによって、架橋を有する熱硬化性樹脂を形成し、かつ同時に熱可塑性樹脂高分子同士、および前記熱可塑性樹脂高分子と熱硬化性樹脂高分子との絡み合いを形成する工程を含む熱硬化性樹脂および熱可塑性樹脂の混合物からなる高分子電解質の製造方法にも関する。

【0016】まず、工程（a）においては、熱硬化性樹脂を構成するモノマーおよび／もしくはプレポリマー、架橋剤ならびに重合開始剤に、熱可塑性樹脂、極性溶媒および電解質塩を添加、混合する。熱硬化性樹脂を構成するモノマーおよびプレポリマーとしては、所望する高分子電解質を構成する熱硬化性樹脂の種類に応じて適宜選択すればよい。

【0017】熱硬化性樹脂としてポリアクリロニトリルを用いる場合は、例えばアクリロニトリルプレポリマー（繰り返し単位20～50程度）などを用いればよい。熱硬化性樹脂としてポリエーテルを用いる場合は、例えばエチレンオキサイドやプロピレンオキサイドのプレポリマーなどを用いればよい。熱硬化性樹脂としてエポキシ樹脂を用いる場合は、例えばエピクロルヒドリンとビスフェノールAなどを用いればよい。

【0018】また、架橋剤としても、所望する高分子電解質を構成する熱硬化性樹脂の種類に応じて適宜選択すればよいが、例えばペンタエリスリトールトリアクリレート、トリメチロールプロパントリアクリレートなどがあげられる。重合開始剤としては、加熱によって架橋を有する熱硬化性樹脂を得る場合は、例えば過酸化ベンゾイルなどが挙げられる。また、紫外線照射によって架橋を有する熱硬化性樹脂を得る場合は、例えばベンジルジメチルケタールなどが挙げられる。

【0019】つぎに、熱可塑性樹脂としては、前述の熱可塑性樹脂を用いればよく、極性溶媒としては、例えばエチレンカーボネート（EC）、プロピレンカーボネート（PC）、ジメチルカーボネート（DMC）、ジメチルホルムアミド（DMF）、N-メチルホルムアミド（NMF）などが挙げられる。分子量は30万（Nw）以上が好ましい。また、電解質塩としては、イオン伝導性に優れている$LiBF_4$、$LiPF_6$、$LiClO_4$、$LiCF_3SO_3$、$LiAsF_6$、$LiN(SO_2CF_3)_2$などのLi塩などが挙げられる。これらの成分の添加、混合は、常法により行えばよい。

【0020】つぎに、前記工程（b）においては、工程（a）において得られる混合物に紫外線を照射することによって架橋を有する熱硬化性樹脂高分子を形成した後、加熱、冷却することによって熱可塑性樹脂高分子同士の物理的な絡み合いを形成する。このとき、前記工程（b）において、加熱、冷却することによって熱可塑性樹脂同士の絡み合いを形成した後、紫外線照射によって架橋を有する熱硬化性樹脂高分子を形成する方法も有効である。すなわち、前記混合物を加熱、冷却することによって共有結合架橋と物理架橋を同時に形成してもよく、また、物理架橋の前後で紫外線照射によって共有結合架橋を形成してもよい。

【0021】さらに、前記混合物をポリオレフィンやポリエチレンテレフタレートなどの離型性に優れるフィルム上に塗布して前記工程（b）を行ってもよく、前記混合物を正極板および負極板に塗布または含浸して前記工程（b）を行い、ついで正極板および負極板を張り合わせてもよい。

【0022】

【実施例】以下、実施例を用いて本発明を具体的に説明するが、本発明はこれらのみに限定されるものではない。

《実施例1》

（1）高分子電解質の作製

両端にアクリルロイル基を有し、中央に脂環型樹脂（主鎖を構成するアルキル基の炭素数は約50）を有するオリゴマーエポキシアクリレート50重量部に、架橋剤としてペンタエリスリトールトリアクリレート（PETA）8重量部、および重合開始剤として過酸化ベンゾイル2重量部を添加し、充分に混合して、熱硬化樹脂の前駆体を作製した。この前駆体に、熱可塑性樹脂として分子量30万のアクリロニトリル-メタクリル酸（AN-MA）共重合体（共重合モル比97：3）15重量部、極性溶媒としてエチレンカーボネート（EC）100重量部、プロピレンカーボネート（PC）50重量部、および電解質塩として$LiBF_4$を20重量部添加し、充分に混合した後、50℃において真空脱泡した。このようにして調製したゾル状溶液を乾燥雰囲気下で厚さ30μmの2枚のステンレス鋼板間に配し、120℃で60分間加熱し、前記前駆体を熱重合をさせるとともにAN-MA共重合体を融解させた。ついで、-20℃の雰囲気に1日間放置して、分子間の絡み合いを形成させた。このようにして本発明の高分子電解質（14mm×24

mm）を作製した。

【0023】（2）電池の作製

つぎに、正極活物質としての$LiCoO_2$、導電材としての黒鉛粉末、および結着剤としてのポリテトラフルオロエチレン（PTFE）、希釈剤としてのジメチルホルムアミド（DMF）を、重量比100：5：7：80の割合で混合し、アルミニウム箔集電体の両面に塗布し、プレス、熱処理して、正極（10mm×20mm）を作製した。一方、負極活物質の高結晶性炭素、結着剤のPTFEおよび希釈剤としてのDMFを重量比100：4：80の割合でよく混合し、銅箔上に塗布し、乾燥熱ロールプレスし、負極（12mm×22mm）を作製した。上記の正極にAlのリード線、負極に銅のリード線をそれぞれ接続した後、EC、PCおよび$LiBF_4$とを重量比10：5：2の割合で混合して調製した電解液を正負極に真空含浸させた。つぎに、1枚の正極の両側に上記のゲルおよび負極を各々張り合わせ、アルミニウムをラミネートした樹脂フィルム製袋内に挿入し、真空シールして密閉し、容量が正極で規制された電池を作製した。

［評価］さらにこの電池の両面をアクリル樹脂板で軽く押さえた状態で充放電試験を行った。なお、これらの作業はいずれもドライルームの中で行った。0．2C、4．2Vの定電流、定電圧で8時間充電し、0．2Cで、3．0Vカットの条件で放電した。100サイクル後の容量維持率は92%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。通常の熱可塑性樹脂からなる分子間の絡み合いのみを有するゲルでは、溶解を起こした。また、放電電流を1Cにした充放電試験(充電電流は1／5C）の場合、容量は放電電流0．2Cのときの93%と優れたレート特性を示した。なお、結果は合わせて表1に示す。

【0024】《実施例2》

（1）高分子電解質の作製

両端にアクリル酸基を有し、中央にエチレンオキサイド基が直鎖状に約100個並んだオリゴマー20重量部に、架橋剤としてトリメチロールプロパントリアクリレート（TMPTA）8重量部、および重合開始剤としてベンジルジメチルケタール2重量部を添加し、充分に混合して、熱硬化性樹脂の前駆体を作製した。この前駆体に、分子量50万のアクリロニトリル－酢酸ビニル（AN－VAc）共重合体（共重合モル比95：5）50重量部、極性溶媒のエチレンカーボネート（EC）140重量部、プロピレンカーボネート（PC）60重量部、および電解質塩として$LiPF_6$を30重量部添加し、充分に混合した後、50℃で真空脱泡した。こうして調製したゾル状溶液を乾燥雰囲気下でポリエチレンテレフタラート製フィルム（厚さ約30μm）上に塗布した後、Arガス中で紫外線を照射し、まず共有結合架橋を形成した。つぎに、このフィルムを90℃に加熱し、AN－VAc共重合体が融解してから30分間保持し、その後－20℃の雰囲気に1日間放置して分子間の絡み合い（物理架橋）を形成させた。こうして、本発明の高分子電解質（14mm×24mm）を作製した。

【0025】（2）電池の作製

つぎに、実施例1と同様の電解液（EC／PC／$LiPF_6$＝4／2／1）を含浸した1枚の正極と2枚の負極との間に上記の高分子電解質を転写し、挟み込んでセルを作製し、アルミニウムをラミネートした樹脂フィルムの袋内に挿入し、真空シールして密閉し、電池を作製した。

［評価］この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は95%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電においても0．2C放電時の容量の94%を有し、優れたレート特性を示した。一方、通常の分子間の絡み合い（物理架橋）のみを有する高分子電解質では、ゲルが溶解し、電池が変形して短絡を起こした。なお、結果は合わせて表1に示す。

【0026】《実施例3》実施例2と同様のオリゴマーとして両端にアクリル酸基を有し、中央にエチレンオキサイド基が直鎖状に約100個並んだもの7重量部に、架橋剤としてTMPTA2重量部、および重合開始剤としてベンジルジメチルケタールを1重量部添加し、充分に混合して、熱硬化性樹脂の前駆体を作製した。つぎに、分子量50万のAN－VAc共重合体（共重合モル比93：7）90重量部に、極性溶媒としてEC140重量部およびジメチルカーボネート（DMC）80重量部、電解質塩として$LiN(SO_2CF_3)_2$を30重量部加え、これらを前記前駆体と充分に混合した後、50℃で真空脱泡した。こうして調製したゾル状溶液を乾燥雰囲気下でポリプロピレン製フィルム上に塗布した後、先に130℃に加熱して、AN－VAc共重合体を融解し、約5分間保持した後、0℃の雰囲気下で1日間冷却して、分子間に絡み合い（物理架橋）を有するゲル部分を作製した。つぎに、Arガス雰囲気下で上方から紫外線を照射して共有結合架橋を形成し、本発明の高分子電解質（膜厚30μm）を作製した。この高分子電解質を用いて、実施例2と同様にして電池を作製した。

［評価］前記電池の充放電特性を測定した。100サイクル後の容量維持率は91%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0．2C放電時の容量の94%を有し、優れたレート特性を示した。なお、結果は、合わせて表1に示す。

【0027】《実施例4》実施例1で調製した高分子電解質を作製するためのゾル状溶液に、実施例1と同様の正極および負極を浸漬し、真空下で電極内にゲル形成材を含浸させた。つぎに、電極を取り出し、120℃まで温度を上げ60分間保持した。その後、－20℃の雰囲

気に1昼夜保持することで電極内部（特に表面付近）に、共有結合架橋と分子間の絡み合い（物理架橋）の両者が混在した高分子電解質を作製した。この際、電極表面には膜厚15μm程度のゲルの薄膜層が形成されていた。このようにして作製した正極1枚と負極2枚を張り合わせることで電極間に電解質（膜厚30μm）を有する電池を構成した。

［評価］この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は94%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0．2C放電時の容量の90%を有し、優れたレート特性を示した。なお、結果を合わせて表1に示す。

【0028】《実施例5》実施例2で調製した高分子電解質を作製するためのゾル状溶液を、実施例1と同様の正極および負極の表面に塗布した。つぎに、電極の前記塗布面に紫外線を照射した後、電極を140℃まで一旦5分間温度を上げ、ついで、−20℃の雰囲気に1昼夜保持することにより、電極表面付近に共有結合架橋と物理架橋の両者が混在した高分子電解質を作製した。この際、電極表面には膜厚15μm程度のゲルの薄膜層が形成されていた。なお、負極は一方面に、また正極は両面に高分子電解質層を形成した。このようにして高分子電解質層を形成した正極1枚と負極2枚を張り合わせて電極間に電解質を有する電池を構成した。

［評価］この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は93%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0．2C放電時の容量の91%を有し、優れたレート特性を示した。結果を合わせて表1に示す。

【0029】《実施例6》実施例2で調製した高分子電解質を作製するためのゾル状溶液を、実施例1と同様の正極および負極の表面に塗布した。つぎに、電極を140℃まで一旦温度を上げて5分間保持し、ついで、−20℃の雰囲気に1昼夜保持し物理架橋を形成した。その後、電極の前記塗布面にArガス雰囲気下で紫外線を照射して共有結合架橋を形成した。こうして、電極表面付近において分子間に絡み合いを有する熱可塑性樹脂と分子内に架橋を有する熱硬化性樹脂の両者が混在した高分子電解質層を作製した。この際、電極表面には膜厚15μm程度のゲルの薄膜層が形成された。なお、負極は一方面に、また正極は両面に高分子電解質層を形成した。このようにして作製した正極1枚と負極2枚を張り合わせて電極間に高分子電解質を有する電池を構成した。

［評価］この電池の充放電特性を実施例1と同様にして測定した。100サイクル後の容量維持率は91%であり、85℃で3日間放置後の電池の外観変化も全く観察されなかった。また、1C放電時の容量は、0．2C放電時の容量の91%を有し、優れたレート特性を示した。結果を合わせて表1に示す。

【0030】《実施例7～13》高分子電解質を構成する成分を表1に示すものに変えた他は実施例1と同様の製造方法によって電池を作製し、特性を評価した。ゲルを構成する極性溶媒および電解質塩は同一組成のもの（ECを120重量部、PCを60重量部、およびLiCF_3SO_3を20重量部）を用いた。いずれの材料を用いた電池も耐熱性、サイクル特性、および高率放電特性に優れることがわかった。

【0031】《比較例1》AN−MA共重合体の物理架橋のみが形成される高分子電解質を用いた他は実施例3と同様にして電池を作製し、電池特性を評価した。その結果、サイクル性およびレート特性は優れていたが、耐熱性の点で不都合があった。すなわち、85℃で3日間保持したところ短絡を起こした。

【0032】《比較例2》分子内に共有結合架橋を有する熱硬化性樹脂のみからなる高分子電解質を用いて実施例1と同様にして電池を作製し、電池特性を評価した。その結果、耐熱性の点では優れていたが、サイクル特性およびレート特性の点で実施例のものに比べて劣っていた。また、電池作製時におけるクラック発生が多く、不良率が高くなるという問題もあった。また、熱硬化製樹脂と熱可塑性樹脂を混合させ、共有結合架橋のみを有するゲルにおいては、耐熱性と機械的強度の面では改善されるが、電解液保持率が低く、イオン伝導度が低くなるという欠点を有している。

【0033】

【表1】

		ゲル電解質の組成		評価結果		
		熱硬化性樹脂の組成（重量部）	熱可塑性樹脂の組成（重量部）	耐熱性	高率放電特性	容量維持率(%)
実施例	1	脂環式エポキシアクリレート／50、PETA／8、過酸化ベンゾイル／2	AN－MA共重合体／15	変形なし ショートなし	93	92
	2	エチレンオキサイド・アクリレート／20、TMPTA／8、ベンジルジメチルケタール／2	AN－VAc共重合体／50	変形なし ショートなし	94	95
	3	エチレンオキサイド・アクリレート／7、TMPTA／2、ベンジルジメチルケタール／1	AN－VAc共重合体／90	変形なし ショートなし	94	91
	4	脂環式エポキシアクリレート／50、PETA／8、過酸化ベンゾイル／2	AN－MA共重合体／15	変形なし ショートなし	90	94
	5	エチレンオキサイド・アクリレート／20、TMPTA／8、ベンジルジメチルケタール／2	AN－VAc共重合体／50	変形なし ショートなし	91	93
	6	エチレンオキサイド・アクリレート／20、TMPTA／8、ベンジルジメチルケタール／2	AN－VAc共重合体／50	変形なし ショートなし	91	91
	7	アクリロニトリル／20、PETA／5、過酸化ベンゾイル／2	AN－アクリル酸共重合体／60	変形なし ショートなし	92	92
	8	アクリレート／30、PETA／4、過酸化ベンゾイル／2	PANホモポリマー／80	変形なし ショートなし	92	91
	9	メタクリレート／40、PETA／4、過酸化ベンゾイル／2	PVDF－HFP共重合体／50	変形なし ショートなし	91	92
	10	ビスフェノールA型エポキシ／40、PETA／5、過酸化ベンゾイル／2	PVDF／60	変形なし ショートなし	90	93
	11	エチレンオキサイド／50、PETA／5、過酸化ベンゾイル／3	エチレンオキサイド－アクリルアミド共重合体／70	変形なし ショートなし	94	90
	12	ヘキサメチレナンモニウムアジペート／30、PETA／5、過酸化ベンゾイル／2	ポリエチレンオキサイド／80	変形なし ショートなし	93	91
	13	トリレンジイソシアネート／30、ポリエステル／50、ヒドロキシアクリレート／20、過酸化ブチル／2	PVDF－HFP共重合体／50	変形なし ショートなし	92	90
比較例	1	－	AN－VAc共重合体／100	変形あり ショートあり	91	94
	2	脂環式エポキシアクリレート／65、PETA／8、過酸化ベンゾイル／2	－	変形なし ショートなし	89	82

【0034】以上のように共有結合架橋と分子間の絡み合いからなる物理架橋を有する熱可塑性樹脂の両者が混在するゲルを用いることで耐熱性、サイクル特性、高率放電特性に優れた電池となることがわかった。この際、前述のように、熱硬化性樹脂の重量比率が全高分子量に対して10～80重量%であることが望ましい。極性溶媒としてはジメチルホルムアミド（DMF）、N－メチルホルムアミド（NMF）、ジプロピレンカーボネート（DPC）なども、さらに電解質塩として$LiClO_4$、$LiAsF_6$も有効であった。

また、本発明の高分子電解質において、熱可塑性樹脂から＊ら構成されるゲル部分は、高温で絡み合い点が解けて溶融状態となり、熱硬化性樹脂から構成されるゲル部分で耐熱性が保持されているものと考えられる。

【0035】

【発明の効果】本発明によれば、共有結合架橋と物理架橋を有する熱可塑性樹脂の両者が混在した高分子電解質とすることにより、耐熱性および高率放電特性に優れ、機械強度も高く、さらに残留応力が少なくサイクル特性にも優れたリチウム電池が得られる。すなわち、本発明の高分子電解質は、耐熱性、高率放電特性およびサイクル特性をバランスよく満足するものである。

フロントページの続き

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CD00W CF21W CF28W CH00W
CH02X CK02W CP00W DD038
DE198 DH008 DK008 EH046
EK047 EV178 FD118 FD146
FD157
5G301 CA30 CD01 CE01
5H029 AJ02 AJ05 AJ11 AJ15 AK03
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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination	
10/635,122	HWANG ET AL.	
Examiner	**Art Unit**	
Laura S. Weiner	1745	

SEARCHED

Class	Subclass	Date	Examiner
429	300, 189, 303, 317, 307,	9/26/2006	LSW
Updated Search		2-28-07	LSW
Updated Search		8-6-07	LSW

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)

	DATE	EXMR
Searched East. Did an inventor search. Looked over search 8-31-06 and search 9-25-06.	9/26/2006	LSW
Looked over Search 2-6-07	2-28-07	LSW
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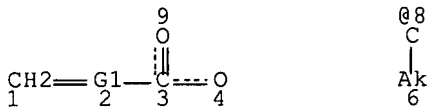


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SEARCH TIME: 00.00.06


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     (FILE 'HOME' ENTERED AT 07:11:40 ON 30 JUL 2007)
               DEL HIS
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     FILE 'HCAPLUS' ENTERED AT 07:14:14 ON 30 JUL 2007
L1             1 S US20040029016/PN OR (US2003-635122# OR KR2002-46580 OR KR2003
               E HWANG/AU
L2             3 S E3
               E HWANG D/AU
L3            49 S E3,E4
               E HWANG DUCK/AU
L4            24 S E4,E10
               E HWANG NAME/AU
L5             9 S E4
               E LEE/AU
L6            36 S E3
               E LEE K/AU
L7          1367 S E3,E24
               E LEE KYOUNG/AU
L8            40 S E3
L9            36 S E26
               E LEE KYOUNGHE/AU
L10            1 S E4
               E LEE NAME/AU
L11          279 S E4
               E DUCK/AU
L12            1 S E3
               E DUCK NAME/AU
               E DUCKCHUL/AU
               E KYOUNG/AU
               E KYOUNGHE/AU
               E SAMSUN/PA,CS
L13        47749 S SAMSUNG?/PA,CS
               E SAMSUM/PA,CS
L14            3 S E4-E10
               E SAMSUM/CO
               E E7+ALL
L15        47306 S E2+RT OR E134-E142
L16            1 S L1 AND L2-L15
               SEL RN

     FILE 'REGISTRY' ENTERED AT 07:19:01 ON 30 JUL 2007
L17           41 S E1-E41
L18           22 S 75-91-2 OR 78-63-7 OR 78-67-1 OR 80-15-9 OR 80-43-3 OR 94-36-
L19            5 S 14666-78-5 OR 52373-75-8 OR 95732-35-7 OR 116657-72-8 OR 1184
L20           27 S L18,L19
L21           14 S L17 NOT L20
L22            3 S L21 AND (?LITHIUM?/CNS OR LI/ELS)
L23            2 S L22 NOT LI/MF
L24            2 S L21 AND (?SULFUR?/CNS OR S/ELS)
L25            1 S L24 NOT S/MF
L26            2 S L23,L25
L27            2 S L22,L24 NOT L26
L28           10 S L21 NOT L22-L27
L29              STR
L30           50 S L29 CSS
L31              SCR 970 AND 2005
L32              SCR 1015 OR 1054
L33           50 S L29 AND L31 AND L32 CSS SAM
L34       367489 S L29 AND L31 AND L32 CSS FUL

     FILE 'HCAPLUS' ENTERED AT 08:08:27 ON 30 JUL 2007
L35       41393 S L20
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L36      122747 S H01M/IPC,IC,ICM,ICS
                E BATTERIES/CT
                E E3+ALL
L37      127606 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT
                E BATTERY/CT
L38       60293 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7+OLD,NT
                E E8+ALL
L39        9383 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT
                E BATTERY/CT
                E E7+ALL
                E E6+ALL
L40        4540 S E9
L41        5296 S E14+OLD,NT
L42       30005 S E16+OLD,NT
L43       44344 S E7
                E E15+ALL
L44       16749 S E4
                E E11+ALL
L45       21409 S E8
                E E24+ALL
                E E8+ALL
L46        9824 S E5,E6,E7
                E CONDUCTING POLYMER/CT
                E E4+ALL
L47       18178 S E5,E6
L48         574 S L35 AND L36-L47
L49         375 S L35 AND (?BATTER? OR (FUEL OR ELECTR?)(S)CELL)
L50        2155 S L35 AND ELECTR?/SC,SX
L51         276 S L35 AND ?POLYM?(S)?ELECTROLYT?
L52        2561 S L48-L51
L53         577 S L52 AND PY<=2002 NOT P/DT
L54         637 S L52 AND PY<=2003 NOT P/DT
L55        1340 S L52 AND (PD<=20030806 OR PRD<=20030806 OR AD<=20030806) AND P
L56         130 S L51 AND (PD<=20030507 OR PRD<=20030507 OR AD<=20030507) AND P
L57         116 S L51 AND (PD<=20020807 OR PRD<=20020807 OR AD<=20020807) AND P
L58        1977 S L53-L57

     FILE 'REGISTRY' ENTERED AT 08:19:46 ON 30 JUL 2007

     FILE 'HCAPLUS' ENTERED AT 08:19:50 ON 30 JUL 2007
L59             TRA L58 1- RN :    12326 TERMS

     FILE 'REGISTRY' ENTERED AT 08:20:38 ON 30 JUL 2007
L60       12324 SEA L59
L61          27 S L60 AND L20
L62        1738 S L60 AND L34
L63         123 S L60 AND (LI/ELS OR ?LITHIUM?/CNS OR 7439-93-2 OR 7439-93-2/CR
L64        1471 S L60 AND (S/ELS OR ?SULF?/CNS OR 7704-34-9 OR 7704-34-9/CRN/CR
L65          23 S L63 AND L64
L66          20 S L65 NOT ((TIS OR CCS)/CI OR C6H4S)
L67           2 S L63 AND 1/ELC.SUB
L68           2 S L64 AND 1/ELC.SUB AND S/ELS
L69         100 S L63 NOT L65
L70          98 S L69 NOT L67
L71           3 S L70 AND L62
L72          95 S L70 NOT L71

     FILE 'HCAPLUS' ENTERED AT 08:31:29 ON 30 JUL 2007
L73          46 S L58 AND L66
L74         141 S L58 AND (L72 OR L67)
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L75          21 S L58 AND L68
L76          10 S L74 AND L75
L77          53 S L73,L76
L78           2 S L58 AND L71
L79          54 S L77,L78
L80         148 S L58 AND L63
L81          89 S L80 AND L64
L82          90 S L79,L81
L83          54 S L82 AND L62
L84          71 S L77,L83

     FILE 'REGISTRY' ENTERED AT 08:52:43 ON 30 JUL 2007
L85           7 S 109-99-9 OR 625-86-5 OR 534-22-5 OR 646-06-0 OR 109-99-9 OR 1
                E OXANE
                E 1,4-OXANE/CN
L86           3 S PYRAN/CN
L87           1 S 142-68-7
L88          15 S 67-68-5 OR 68-12-2 OR 96-48-0 OR 872-50-4 OR 96-49-1 OR 108-3
L89          22 S L85,L88

     FILE 'HCAPLUS' ENTERED AT 09:06:25 ON 30 JUL 2007
L90          42 S L89 AND L84
L91          29 S L84 AND ?SOLVENT?
L92          44 S L90,L91
L93          12 S L1-L16 AND L92
L94          12 S L1-L16 AND L84
L95          12 S L93,L94
L96          32 S L92 NOT L95
L97          10 S L96 NOT BATTERY
                SEL AN 1 7 8 9
L98           4 S L97 AND E1-E8
L99          22 S L96 NOT L97
L100         21 S L99 NOT 59/SC
L101         37 S L95,L98,L100
L102         27 S L84 NOT L90-L101
L103         31 S L101 AND L62
L104          6 S L101 NOT L103
L105          1 S L104 AND L1-L16
L106         32 S L103,L105
L107          5 S L104 NOT L106
L108          1 S L107 AND 128:35554/DN
L109         33 S L103,L105,L108
L110         11 S L92 NOT L109
L111          1 S L110 AND 138:323915/DN
L112         34 S L109,L111
L113         27 S L102 NOT L112
L114          3 S L113 AND BATTER?/TI
L115          4 S L113 AND CELL?/TI
L116          7 S L114,L115
L117         20 S L113 NOT L116
                SEL AN 5 17 19
L118          3 S L117 AND E9-E14
L119         37 S L112,L118
L120         37 S L119 AND L1-L16,L35-L58,L73-L84,L90-L119
L121         33 S L120 AND L62
L122         28 S L120 AND ?ACRYL?
L123         35 S L121,L122
L124          2 S L120 NOT L123
L125          1 S L124 AND (?CR1CH2OCOO? OR ?CR2CH2O? OR NCOOCH2CR3?)
L126         36 S L123,L125
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SEL HIT RN

FILE 'REGISTRY' ENTERED AT 09:27:24 ON 30 JUL 2007
L127 274 S E15-E288
L128 124 S L127 AND L34
L129 49 S L128 AND 1/NC
L130 75 S L128 NOT L129
L131 2 S L130 AND (K OR LI)/ELS AND 2/NC
L132 1 S L130 AND "C4H6O2.X(C2H4O)NH2O"/MF
L133 52 S L129,L131,L132

FILE 'HCAPLUS' ENTERED AT 09:30:27 ON 30 JUL 2007
L134 26 S L133 AND L126
L135 27 S L125,L134

FILE 'REGISTRY' ENTERED AT 09:31:47 ON 30 JUL 2007

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 09:32:36 ON 30 JUL 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 30 Jul 2007 VOL 147 ISS 6
FILE LAST UPDATED: 29 Jul 2007 (20070729/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l135 bib abs hitind hitstr retable tot

L135 ANSWER 1 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:466390 HCAPLUS Full-text
DN 142:484864
TI Manufacture of secondary polymer lithium **battery**
IN Tang, Zhiyuan; Wang, Zhanliang
PA Tianjin University, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 7 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1426126	A	20030625	CN 2003-100743	20030123 <--
PRAI CN 2003-100743		20030123 <--		

AB The **battery** is manufactured by dissolving Me **methacrylate**, **acrylonitrile** and lithium **methacrylate** dissolving in a 1st **solvent**; placing the mixture in a container and adding an initiator; sealing the container after removing O and reacting at 50-70° for 8-12 h to obtain a 1st **polymer**; mixing the 1st **polymer** with a 2nd **polymer** (polyvinylidene fluoride; or vinylidene fluoride-hexafluoropropylene **copolymer**) in a 2nd **solvent** to form a slurry, applying the slurry on a cathode and/or an anode; drying at 30-50° to form a film; assembling the electrodes in a **battery** case; and injecting an **electrolyte** solution in to th case followed by sealing.

IC ICM **H01M0010-40**
ICS **H01M0010-38**

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST polymer lithium secondary **battery** manuf

IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(manufacture secondary polymer lithium **batteries**)

IT **78-67-1**, Azobisisobutyronitrile
RL: CAT (Catalyst use); USES (Uses)
(manufacture secondary polymer lithium **batteries**)

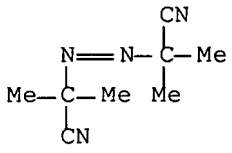
IT **80-62-6**, Methyl **methacrylate** 107-13-1, **Acrylonitrile**, processes **13234-23-6**, Lithium **methacrylate**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(manufacture secondary polymer lithium **batteries**)

IT **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate **108-32-7**, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate **7791-03-9**, Lithium perchlorate 9011-17-0, Vinylidene fluoride-hexafluoropropylene copolymer **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate 24937-79-9, Polyvinylidene fluoride **29763-27-7**, **Acrylonitrile-methacrylic** acid-methyl **methacrylate** copolymer **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium trifluoromethane sulfonate **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(manufacture secondary polymer lithium **batteries**)

IT **78-67-1**, Azobisisobutyronitrile
RL: CAT (Catalyst use); USES (Uses)
(manufacture secondary polymer lithium **batteries**)

RN 78-67-1 HCAPLUS

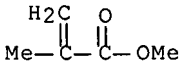
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



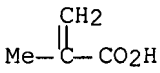
IT **80-62-6**, Methyl **methacrylate** **13234-23-6**, Lithium **methacrylate**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(manufacture secondary polymer lithium **batteries**)

RN 80-62-6 HCAPLUS

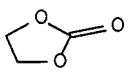
CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



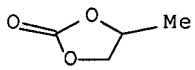
RN 13234-23-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, lithium salt (1:1) (CA INDEX NAME)



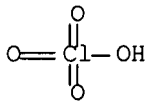
IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **29763-27-7**, **Acrylonitrile-methacrylic** acid-methyl **methacrylate** copolymer **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium trifluoromethane sulfonate **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(manufacture secondary polymer lithium **batteries**)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



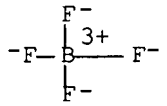
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)

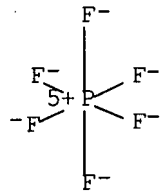


RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

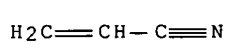


● Li+

RN 29763-27-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with methyl 2-methyl-2-propenoate and 2-propenenitrile (CA INDEX NAME)

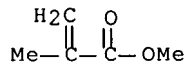
CM 1

CRN 107-13-1
CMF C3 H3 N



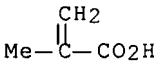
CM 2

CRN 80-62-6
CMF C5 H8 O2

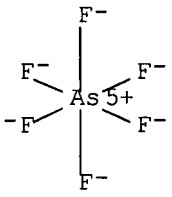


CM 3

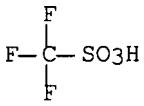
CRN 79-41-4
CMF C4 H6 O2



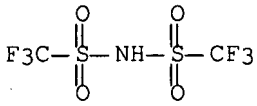
RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



L135 ANSWER 2 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN **2004:1026264** HCAPLUS Full-text
DN 142:23764
TI Ion-conducting thermally convertible polymeric material and polymerized

compound for its production
IN Mokrousov, G. M.; Izaak, T. I.; Gavrilenko, N. A.
PA Tomskii Gosudarstvennyi Universitet, Russia
SO Russ., No pp. given
CODEN: RUXXE7
DT **Patent**
LA Russian
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI RU 2241282	C2	20041127	RU 2000-129845	20001128 <--
PRAI RU 2000-129845		20001128 <--		

AB Ion-conducting thermally convertible **polymeric** material and **polymerized** compound for its production as solid-state ion conductors or **polymeric electrolytes** are described. The proposed compound for producing ion-conducting thermally convertible polymeric materials has in its composition alkyl and/or allyl ester of **methacrylic** acid that functions as monomer that incorporated in alkyl radical 1 - 16 atoms of carbon and one or more salts of s-, p-, d-, and f-metals of halide-substituted low aliphatic carbonic acid having 1 - 4 atoms of carbon and/or ammonium trifluoroacetate in alkyl radical with low carbonic acids incorporating 1 - 6 atoms of carbon in alkyl radical added or not to them, remaining chelate-forming organic compds. that incorporate heteroatom of nitrogen, or sulfur being added or not to them. In addition it has salts of s- and/or p-metal of alkyl and/or alkenyl-**acrylic** acid, and/or organic component composed of one or more low-mol. substances each incorporating in its composition at least two functional groups of OH, NHx, CS, COOH, CO and/or polar **solvents** capable of dissolving both mentioned salts of halide-substituted low aliphatic carbonic acid and mentioned salts of alkyl and/or alkenyl-**acrylic** acid, proportion of components being as follows: 1 10-4 - 2 mol/l of monomeric mixture of mentioned salts of halide-substituted low aliphatic carbonic acid; 0.01 - 0.1 mol fractions of salt of s- and/or p-metal of alkyl and/or alkenyl- **acrylic** acid, or 0.1 - 0.55 mol fractions of mentioned organic components, or mixture thereof; and the rest of monomer of mentioned composition In addition description is given of ion-conducting thermally convertible polymeric material produced from polymeric compound and ion-conducting polymeric film produced from thermally convertible polymeric material. Transparent ion-conducting material produced in the process has elec. conductivity as high as 10-4 to 10-5S/cm at room temperature with desired characteristics of material being retained.</B><B>EFFECT: enhanced elec. conductivity of material, that is enhanced conductivity and stability of gel-electrolyte produced in the process.

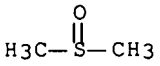
IC ICM **H01M0006-16**
ICS **H01M0006-18**; **H01M0010-40**; C08L0033-10; C08J0005-18
CC 36-5 (Physical Properties of Synthetic High Polymers)
Section cross-reference(s): **52**, **76**
ST thermally convertible **polymeric** material ion conducting solid **electrolyte**
IT Ionic conductors
Polymer electrolytes
Solid electrolytes
(ion-conducting thermally convertible **polymeric** material)
IT 57-13-6, Urea, processes 60-00-4, EDTA, processes **67-68-5**, DMSO, processes **68-12-2**, Dimethylformamide, processes **75-05-8**, Acetonitrile, processes 75-12-7, Formamide, processes **79-41-4**, **Methacrylic** acid, processes **80-62-6**, **Methylmethacrylate** 107-21-1, Ethylene glycol, processes **108-32-7**, Propylene carbonate 123-39-7, N-Methylformamide 124-04-9, Adipic acid, processes 124-09-4, Hexamethylenediamine, processes 144-62-7, Oxalic acid, processes 2923-16-2, Potassium

trifluoroacetate 2923-17-3, Lithium trifluoroacetate 3336-58-1, Ammonium trifluoroacetate 6900-35-2, Potassium **methacrylate** 9004-57-3, Ethylcellulose 21907-47-1, Zinc trifluoroacetate 25322-68-3, Polyethylene glycol
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(ion-conducting thermally convertible polymeric material comprising)

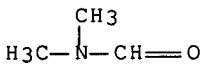
IT **94-36-0**, Benzoyl peroxide, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(polymerization initiator; use in preparation of ion-conducting thermally convertible polymeric material)

IT **67-68-5**, DMSO, processes **68-12-2**, Dimethylformamide, processes **75-05-8**, Acetonitrile, processes **79-41-4**, **Methacrylic** acid, processes **80-62-6**, **Methylmethacrylate** **108-32-7**, Propylene carbonate **2923-17-3**, Lithium trifluoroacetate **6900-35-2**, Potassium **methacrylate**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(ion-conducting thermally convertible polymeric material comprising)

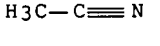
RN 67-68-5 HCAPLUS
CN Methane, 1,1'-sulfinylbis- (CA INDEX NAME)



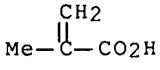
RN 68-12-2 HCAPLUS
CN Formamide, N,N-dimethyl- (CA INDEX NAME)



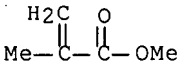
RN 75-05-8 HCAPLUS
CN Acetonitrile (CA INDEX NAME)



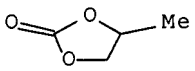
RN 79-41-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



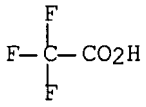
RN 80-62-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



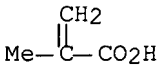
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



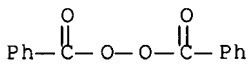
RN 2923-17-3 HCAPLUS
CN Acetic acid, 2,2,2-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 6900-35-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, potassium salt (1:1) (CA INDEX NAME)



IT **94-36-0**, Benzoyl peroxide, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(polymerization initiator; use in preparation of ion-conducting thermally convertible polymeric material)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



L135 ANSWER 3 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:896521 HCAPLUS Full-text
DN 142:117581
TI Organic electrolyte and lithium secondary **battery** using the same

IN Kim, Cheon Su; Noh, Hwan Jin
PA **Samsung SDI Co., Ltd., S. Korea**
SO Repub. Korean Kongkae Taeho Kongbo, No pp. given
CODEN: KRXXA7
DT **Patent**
LA Korean
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	KR 2001095830	A	20011107	KR 2000-19248	20000412 <--
PRAI	KR 2000-19248		20000412 <--		

AB Provided are an organic **electrolyte** containing monomers for forming **polymers** to trap a mixed organic **solvent** and lithium salts, which does not volatilize at a high temperature, and a lithium secondary **battery** using the organic **electrolyte**. The organic **electrolyte** comprises the mixed organic **solvent**, the lithium salts, 1-20 weight% (based on the total weight of the organic **electrolyte**) of the monomers **polymerized** at 40-150 °C for forming the **polymers** to trap the mixed organic **solvent** and the lithium salts, and 0.01-2 weight% (based on the total weight of the organic **electrolyte**) of a **polymerization** initiator selected from the group consisting of benzoyl peroxide, acetyl peroxide, lauroyl peroxide, and azobis isobutyronitrile, wherein the monomer is **acrylonitrile** , Me **acrylate**, **methacrylate**, Me **methacrylate** , and a mixture thereof. The lithium secondary **battery** comprises a cathode containing lithium-containing metal oxides, an anode containing metal lithium, lithium alloy, or carbon material, a separator laid between the cathode and the anode, and the organic electrolyte.

IC ICM **H01M0010-40**
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST **acrylic polymd** gel **polymer electrolyte** lithium secondary **battery solvent**
IT Gels
(gel **polymer electrolytes**; organic **electrolyte** and lithium secondary **battery** using same)
IT **Polymer electrolytes**
(gel; organic **electrolyte** and lithium secondary **battery** using same)
IT **Battery electrolytes**
(gels; organic electrolyte and lithium secondary **battery** using same)
IT **Secondary batteries**
(lithium; organic electrolyte and lithium secondary **battery** using same)
IT **Polymerization**
(organic **electrolyte** and lithium secondary **battery** using same)
IT **Acrylic polymers**, uses
RL: DEV (Device component use); IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(organic **electrolyte** and lithium secondary **battery** using same)
IT **Solvents**
(organic, in electrolyte; organic electrolyte and lithium secondary **battery** using same)
IT Alkali metal oxides
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(other metal-containing, in cathode; organic electrolyte and lithium secondary **battery** using same)

IT 7439-93-2D, Lithium, alloys
RL: DEV (Device component use); USES (Uses)
(anode; organic electrolyte and lithium secondary **battery** using same)
IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(anode; organic electrolyte and lithium secondary **battery** using same)
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(in anode; organic electrolyte and lithium secondary **battery** using same)
IT 7439-93-2D, Lithium, salts
RL: DEV (Device component use); USES (Uses)
(in electrolyte; organic electrolyte and lithium secondary **battery** using same)
IT 79-41-4, **Methacrylic** acid, uses 80-62-6, Methyl **methacrylate** 96-33-3, Methyl **acrylate** 107-13-1, **Acrylonitrile**, uses
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(organic electrolyte and lithium secondary **battery** using same)
IT 78-67-1, AIBN 94-36-0, Benzoyl peroxide, uses 105-74-8, Lauroyl peroxide 110-22-5, Acetyl peroxide
RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
(**polymerization** initiator; organic **electrolyte** and lithium secondary **battery** using same)
IT 7439-93-2D, Lithium, alloys
RL: DEV (Device component use); USES (Uses)
(anode; organic electrolyte and lithium secondary **battery** using same)
RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(anode; organic electrolyte and lithium secondary **battery** using same)
RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(in anode; organic electrolyte and lithium secondary **battery** using same)
RN 7440-44-0 HCAPLUS

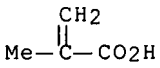
CN Carbon (CA INDEX NAME)

C

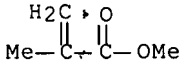
IT **7439-93-2D**, Lithium, salts
RL: DEV (Device component use); USES (Uses)
(in electrolyte; organic electrolyte and lithium secondary **battery** using same)
RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

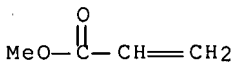
IT **79-41-4**, **Methacrylic** acid, uses **80-62-6**, Methyl **methacrylate** **96-33-3**, Methyl **acrylate**
RL: DEV (Device component use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(organic electrolyte and lithium secondary **battery** using same)
RN 79-41-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



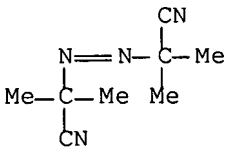
RN 80-62-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



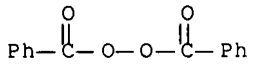
RN 96-33-3 HCAPLUS
CN 2-Propenoic acid, methyl ester (CA INDEX NAME)



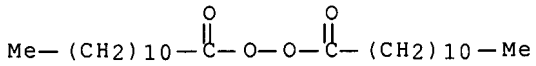
IT **78-67-1**, AIBN **94-36-0**, Benzoyl peroxide, uses **105-74-8**, Lauroyl peroxide
RL: CAT (Catalyst use); DEV (Device component use); USES (Uses)
(**polymerization** initiator; organic **electrolyte** and lithium secondary **battery** using same)
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



L135 ANSWER 4 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:252055 HCAPLUS Full-text
DN 140:256340
TI Anodes for lithium **battery**
IN Kim, Yong-tae; Choi, Su-suk; Choi, Yun-suk; **Lee, Kyoung-hee**
PA **Samsung Sdi Co., Ltd., S. Korea**
SO U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004058232	A1	20040325	US 2003-664157	20030917 <--
	KR 2004026208	A	20040330	KR 2002-57577	20020923 <--
	JP 2004119372	A	20040415	JP 2003-308015	20030829 <--
	CN 1492523	A	20040428	CN 2003-158726	20030922 <--
PRAI	KR 2002-57577	A	20020923 <--		

AB A lithium neg. electrode for a lithium **battery** has good cycle life and capacity characteristics. The lithium neg. electrode comprises a lithium metal layer and a protective layer present on the lithium metal layer, where the protective layer includes an organosulfur compound An organosulfur compound having a thiol terminal group is preferred since such a compound can form a complex with lithium metal to enable coating to be carried out easily. The organosulfur compound has a large number of S or N elements having high electronegativity to form a complex with lithium ions, so it renders lithium ions to be deposited relatively evenly on the lithium metal surface, reducing dendrite formation.

IC ICM **H01M0002-16**
ICS **H01M0004-66; H01M0004-40**
INCL 429137000; 429246000; 429245000; 429212000; 429231950

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST anode lithium **battery**
IT Chalcogenides
Oxides (inorganic), uses
RL: DEV (Device component use); USES (Uses)
(Li-containing; anodes for lithium **battery**)
IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(acyl; anodes for lithium **battery**)
IT Hydroperoxides
RL: MOA (Modifier or additive use); USES (Uses)
(alkyl, tertiary; anodes for lithium **battery**)
IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(alkyl; anodes for lithium **battery**)
IT **Battery anodes**
Coating materials
Conducting polymers
(anodes for lithium **battery**)
IT **Acrylic** polymers, uses
Polyanilines
Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(anodes for lithium **battery**)
IT Amino acids, uses
Halogens
Lewis acids
Rare earth chlorides
Sulfonic acids, uses
Transition metal compounds
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; anodes for lithium **battery**)
IT **Primary batteries**
Secondary batteries
(lithium; anodes for lithium **battery**)
IT Esters, uses
Ketals
RL: MOA (Modifier or additive use); USES (Uses)
(peroxy; anodes for lithium **battery**)
IT Crown ethers
Polybenzimidazoles
Polyquinolines
Polyquinoxalines
RL: MOA (Modifier or additive use); USES (Uses)
(thiophenes, polymers; anodes for lithium **battery**)
IT 110-71-4 111-96-6, Diglyme **126-33-0**, Sulfolane **646-06-0**, 1,3-Dioxolane **7439-93-2**, Lithium, uses **7704-34-9**, Sulfur, uses
RL: DEV (Device component use); USES (Uses)
(anodes for lithium **battery**)
IT 67-63-0, Isopropyl alcohol, uses **75-91-2**, tert-Butyl hydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Dibenzoyl peroxide, uses **105-74-8**, Dilauroyl peroxide **110-05-4**, Di-tert-butyl peroxide 123-23-9, Succinic acid peroxide 762-12-9, Didecanoyl peroxide 927-07-1, tert-Butylperoxypivalate **2167-23-9**,

2,2-Di-(tert-butylperoxy)butane **3025-88-5**, 2.5-Dihydroperoxy-2,5-dimethylhexane 4511-39-1, tert-Amylperoxybenzoate 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane **16066-38-9**, Di(n-propyl)peroxy dicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxy dicarbonate **19910-65-7**, Di(sec-butyl)peroxy dicarbonate 24937-05-1, Poly(ethyleneadipate) 24938-43-0, Poly(β-propiolactone) 24969-06-0, Polyepichlorohydrin 25190-62-9, Poly(p-phenylene) 25233-30-1, Polyaniline 25233-30-1D, Polyaniline, sulfonated **25233-34-5**, Polythiophene **25233-34-5D**, Polythiophene, derivs. 25322-68-3, Peo 25322-69-4, Polypropylene oxide 25667-11-2, Poly(ethylenesuccinate) **25721-76-0**, Polyethylene glycol **dimethacrylate 25852-49-7**, Polypropylene glycol **dimethacrylate 26570-48-9**, Poly(ethylene glycol **diacrylate**) **26748-47-0**, α-Cumylperoxyneodecanoate 34099-48-4, Peroxydicarbonate **52496-08-9**, Poly(**propyleneglycoldiacrylate**) **55794-20-2**, Ethyl 3,3-di-(tert-butylperoxy)butyrate **95732-35-7** 97332-10-0, Poly(N-propylaziridine) 139096-57-4, Isoquinoline homopolymer 172973-34-1
RL: MOA (Modifier or additive use); USES (Uses)
(anodes for lithium **battery**)

IT 865-44-1, Iodine trichloride **1493-13-6**, Triflic acid **7446-11-9**, Sulfur trioxide, uses 7550-45-0, Titanium chloride (TiCl4) (T-4)-, uses 7553-56-2, Iodine, uses 7601-90-3, Perchloric acid, uses 7637-07-2, uses 7647-01-0, Hydrochloric acid, uses 7647-19-0, Phosphorus pentafluoride 7664-39-3, Hydrofluoric acid, uses **7664-93-9**, Sulfuric acid, uses 7697-37-2, Nitric acid, uses 7705-08-0, Ferric chloride, uses 7721-01-9, Tantalum chloride (TaCl5) 7726-95-6, Bromine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-68-8, Niobium fluoride nbf5 7783-70-2, Antimony pentafluoride 7783-81-5 7783-82-6 7783-93-9, Silver perchlorate 7784-36-3, Arsenic pentafluoride **7789-21-1**, Fluorosulfonic acid 7789-33-5, Iodine monobromide **7790-94-5**, Chlorosulfonic acid 7790-99-0, Iodine monochloride 10026-11-6 10026-12-7, Niobium chloride (NbCl5) 10277-43-7, Lanthanum nitrate hexahydrate 10294-33-4, Boron tribromide 10294-34-5 13283-01-7 13499-05-3 **13709-32-5**, Bis(fluorosulfonyl)peroxide 13774-85-1 13819-84-6, Molybdenum fluoride mof5 13870-10-5, Iron chloride oxide feocl 13873-84-2, Iodine monofluoride 14635-75-7, Nitrosyl tetrafluoroborate 14797-73-0, Perchlorate 14874-70-5, Tetrafluoroborate 16871-80-0, Nitrosyl hexachloroantimonate 16887-00-6, Chloride, uses 16919-18-9, Hexafluorophosphate 16941-92-7, Hexachloroiridic acid 16973-45-8, Hexafluoroarsenate 17111-95-4 17856-92-7 20461-54-5, Iodide, uses 24959-67-9, Bromide, uses **25321-43-1**, Octylbenzenesulfonic acid **27176-87-0**, Dodecylbenzene sulfonic acid
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; anodes for lithium **battery**)

IT **540-63-6**, 1,2-Ethanedithiol **1072-71-5**, 2,5-Dimercapto-1,3,4-thiadiazole **2001-93-6**, 2,4-Dimercaptopyrimidine **2150-02-9**, Bis(2-mercaptoethyl)ether **3570-55-6**, Bis(2-mercaptoethyl)sulfide 9002-98-6 9002-98-6D, derivs. 37306-44-8D, Triazole, mecapto derivs **131538-50-6** **135886-78-1** **135886-79-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(protective coating; anodes for lithium **battery**)

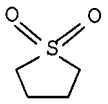
IT **7704-34-9D**, Sulfur, organosulfur compound
RL: TEM (Technical or engineered material use); USES (Uses)
(protective layer; anodes for lithium **battery**)

IT **273-77-8**, 1,2,3-Benzothiadiazole 612-79-3, 6,6'-Biquinoline 25013-01-8, Polypyridine 25013-01-8D, Polypyridine, derivs.

26856-35-9, Dihydrophenanthrene 27986-50-1, Poly(1,3-cyclohexadiene) 30604-81-0, Polypyrrole 30604-81-0D, Polypyrrole, derivs. 51937-67-8, Polyferrocene 71730-08-0, Polyanthraquinone 136902-52-8, 2,2'-Bipyridine homopolymer 136902-52-8D, 2,2'-Bipyridine homopolymer, derivs. 190201-51-5, Pyrimidine homopolymer 190201-57-1, 1,5-Naphthyridine homopolymer
RL: MOA (Modifier or additive use); USES (Uses)
(thiophenes, polymers; anodes for lithium **battery**)

IT **126-33-0**, Sulfolane **646-06-0**, 1,3-Dioxolane **7439-93-2**, Lithium, uses **7704-34-9**, Sulfur, uses
RL: DEV (Device component use); USES (Uses)
(anodes for lithium **battery**)

RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



RN 646-06-0 HCAPLUS
CN 1,3-Dioxolane (CA INDEX NAME)

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

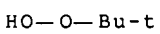
RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

S

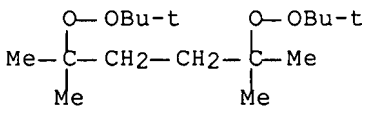
IT **75-91-2**, tert-Butyl hydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di-(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Dibenzoyl peroxide, uses **105-74-8**, Dilauroyl peroxide **110-05-4**, Di-tert-butyl peroxide **2167-23-9**, 2,2-Di-(tert-butylperoxy)butane **3025-88-5**, 2.5-Dihydroperoxy-2,5-dimethylhexane **16066-38-9**, Di(n-propyl)peroxy dicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxy dicarbonate **19910-65-7**, Di(sec-butyl)peroxy dicarbonate **25233-34-5**, Polythiophene **25233-34-5D**, Polythiophene, derivs. **25721-76-0**, Polyethylene glycol **dimethacrylate** **25852-49-7**,

Polypropylene glycol **dimethacrylate** 26570-48-9, Poly(ethylene glycol **diacrylate**) 26748-47-0, α-Cumylperoxyneodecanoate 52496-08-9, Poly(**propyleneglycoldiacrylate**) 55794-20-2, Ethyl 3,3-di-(tert-butylperoxy)butyrate 95732-35-7
RL: MOA (Modifier or additive use); USES (Uses)
(anodes for lithium **battery**)

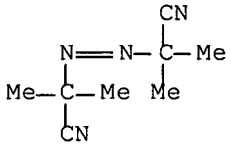
RN 75-91-2 HCAPLUS
CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)



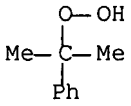
RN 78-63-7 HCAPLUS
CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



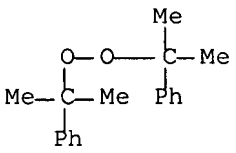
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



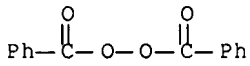
RN 80-15-9 HCAPLUS
CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



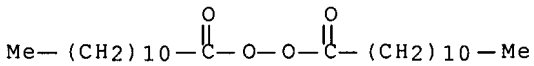
RN 80-43-3 HCAPLUS
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



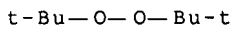
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



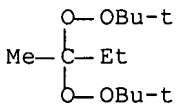
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



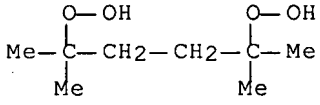
RN 110-05-4 HCAPLUS
CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



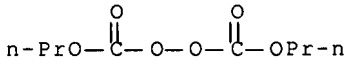
RN 2167-23-9 HCAPLUS
CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



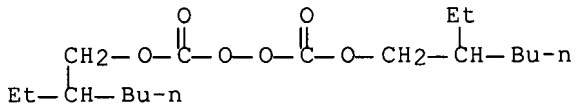
RN 3025-88-5 HCAPLUS
CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



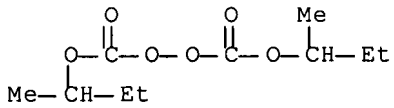
RN 16066-38-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



RN 16111-62-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



RN 19910-65-7 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



RN 25233-34-5 HCAPLUS
CN Thiophene, homopolymer (CA INDEX NAME)

CM 1

CRN 110-02-1
CMF C4 H4 S

RN 25233-34-5 HCAPLUS
CN Thiophene, homopolymer (CA INDEX NAME)

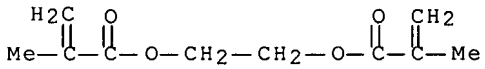
CM 1

CRN 110-02-1
CMF C4 H4 S

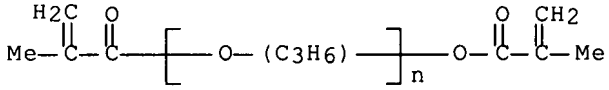
RN 25721-76-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

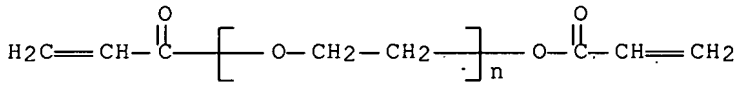
CRN 97-90-5
CMF C10 H14 O4



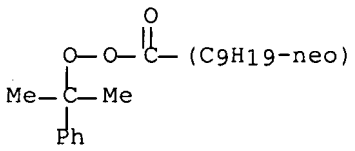
RN 25852-49-7 HCAPLUS
CN Poly[oxy(methyl-1,2-ethanediyl)], α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



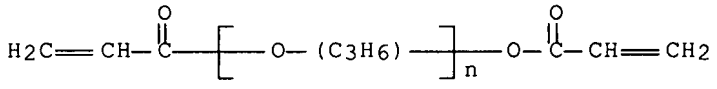
RN 26570-48-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propen-1-yl)-ω-[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



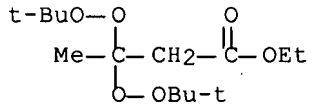
RN 26748-47-0 HCAPLUS
CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



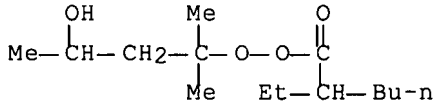
RN 52496-08-9 HCAPLUS
CN Poly[oxy(methyl-1,2-ethanediyl)], α-(1-oxo-2-propen-1-yl)-ω-[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



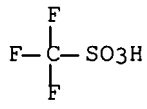
RN 55794-20-2 HCAPLUS
CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



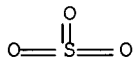
RN 95732-35-7 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)



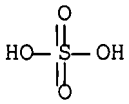
IT **1493-13-6**, Triflic acid **7446-11-9**, Sulfur trioxide, uses **7664-93-9**, Sulfuric acid, uses **7789-21-1**, Fluorosulfonic acid **7790-94-5**, Chlorosulfonic acid **13709-32-5**, Bis(fluorosulfonyl)peroxide **25321-43-1**, Octylbenzenesulfonic acid **27176-87-0**, Dodecylbenzene sulfonic acid
RL: MOA (Modifier or additive use); USES (Uses)
(dopant; anodes for lithium **battery**)
RN 1493-13-6 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro- (CA INDEX NAME)



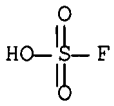
RN 7446-11-9 HCAPLUS
CN Sulfur trioxide (CA INDEX NAME)



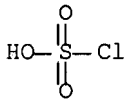
RN 7664-93-9 HCAPLUS
CN Sulfuric acid (CA INDEX NAME)



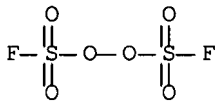
RN 7789-21-1 HCAPLUS
CN Fluorosulfuric acid (CA INDEX NAME)



RN 7790-94-5 HCAPLUS
CN Chlorosulfuric acid (CA INDEX NAME)



RN 13709-32-5 HCAPLUS
CN Peroxydisulfuryl fluoride (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 25321-43-1 HCAPLUS
CN Benzenesulfonic acid, octyl- (CA INDEX NAME)

D1—SO_3H

Me—$(CH_2)_7$—D1

RN 27176-87-0 HCAPLUS
CN Benzenesulfonic acid, dodecyl- (CA INDEX NAME)

D1—SO_3H

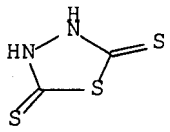
Me—$(CH_2)_{11}$—D1

IT **540-63-6**, 1,2-Ethanedithiol **1072-71-5**, 2,5-Dimercapto-1,3,4-thiadiazole **2001-93-6**, 2,4-Dimercaptopyrimidine **2150-02-9**, Bis(2-mercaptoethyl)ether **3570-55-6**, Bis(2-mercaptoethyl)sulfide **131538-50-6** **135886-78-1** **135886-79-2**
RL: TEM (Technical or engineered material use); USES (Uses)
(protective coating; anodes for lithium **battery**)

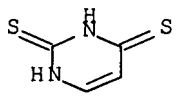
RN 540-63-6 HCAPLUS
CN 1,2-Ethanedithiol (CA INDEX NAME)

HS—CH_2—CH_2—SH

RN 1072-71-5 HCAPLUS
CN 1,3,4-Thiadiazolidine-2,5-dithione (CA INDEX NAME)



RN 2001-93-6 HCAPLUS
CN 2,4(1H,3H)-Pyrimidinedithione (CA INDEX NAME)

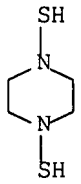


RN 2150-02-9 HCAPLUS
CN Ethanethiol, 2,2'-oxybis- (CA INDEX NAME)

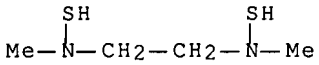
HS—CH_2—CH_2—O—CH_2—CH_2—SH

RN 3570-55-6 HCAPLUS
CN Ethanethiol, 2,2'-thiobis- (CA INDEX NAME)

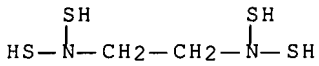
RN 131538-50-6 HCAPLUS
CN Piperazine, 1,4-dimercapto- (9CI) (CA INDEX NAME)



RN 135886-78-1 HCAPLUS
CN 1,2-Ethanediamine, N,N'-dimercapto-N,N'-dimethyl- (9CI) (CA INDEX NAME)

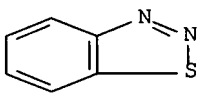


RN 135886-79-2 HCAPLUS
CN 1,2-Ethanediamine, N,N,N',N'-tetramercapto- (9CI) (CA INDEX NAME)



IT **7704-34-9D**, Sulfur, organosulfur compound
RL: TEM (Technical or engineered material use); USES (Uses)
(protective layer; anodes for lithium **battery**)
RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

IT **273-77-8**, 1,2,3-Benzothiadiazole
RL: MOA (Modifier or additive use); USES (Uses)
(thiophenes, polymers; anodes for lithium **battery**)
RN 273-77-8 HCAPLUS
CN 1,2,3-Benzothiadiazole (CA INDEX NAME)



L135 ANSWER 5 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:203431 HCAPLUS Full-text
DN 140:238483
TI Electrolyte for a lithium **battery**
IN Park, Yong-Chul; Jung, Won-Ii; Kim, Geun-Bae; Cho, Jae-Phil; Jung, Cheol-Soo
PA S. Korea
SO U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2004048163	A1	20040311	US 2003-656086	20030905 <--
KR 2004022054	A	20040311	KR 2002-53879	20020906 <--
JP 2004103573	A	20040402	JP 2003-282119	20030729 <--
CN 1495961	A	20040512	CN 2003-164853	20030906 <--
PRAI KR 2002-53879	A	20020906 <--		

OS MARPAT 140:238483
AB An electrolyte for a lithium **battery** includes a nonaq. organic **solvent**, a lithium salt, and an additive comprising (a) a sulfone-based compound and (b) a C3-30 organic peroxide or azo-based compound The **electrolyte** may further include a poly(ester)(meth) **acrylate** or a **polymer** that is derived from a (polyester)polyol with at least three hydroxyl (-OH) groups, where a portion or all of the hydroxyl groups are substituted with a (meth) **acrylic** ester and the remaining hydroxyl groups that are not substituted with the (meth)**acrylic** ester are substituted with a group having no radical reactivity. The lithium **battery** comprising the electrolyte of the present invention has a significantly improved charge-discharge and cycle life characteristics, recovery capacity ratio at high temperature, and swelling inhibition properties.
IC ICM **H01M0010-40**
INCL 429326000; 429329000; 429339000; 429340000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery** electrolyte
IT **Battery electrolytes**
(electrolyte for lithium **battery**)
IT Aromatic hydrocarbons, uses
Carbonates, uses
Esters, uses
Ethers, uses
Ketones, uses
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery**)
IT Azo compounds
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium **battery**)
IT Carbonaceous materials (technological products)
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium **battery**)
IT Sulfones
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium **battery**)
IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)

(hydroxy-terminated; electrolyte for lithium **battery**)

IT **Secondary batteries**
(lithium; electrolyte for lithium **battery**)

IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(**methacrylate**; electrolyte for lithium **battery**)

IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic, C3-30; electrolyte for lithium **battery**)

IT Esters, uses
RL: DEV (Device component use); USES (Uses)
(poly-; electrolyte for lithium **battery**)

IT Imides
Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(sulfonimides, perfluoro derivs., lithium salts; electrolyte for lithium **battery**)

IT 56-81-5, Glycerol, uses 71-43-2, Benzene, uses **96-49-1**, Ethylene carbonate 98-95-3, Nitrobenzene, uses 105-58-8, Diethyl carbonate **108-32-7**, Propylene carbonate 108-88-3, Toluene, uses 108-90-7, Chlorobenzene, uses 149-32-6, Erythritol 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Methylethyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7790-99-0, Iodine chloride (ICl) **7791-03-9**, Lithium perchlorate **10377-51-2**, Lithium iodide (LiI) **14024-11-4**, Lithium tetrachloroaluminate **14283-07-9**, Lithium tetrafluoroborate **18424-17-4**, Lithium hexafluoroantimonate **21324-40-3**, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses **39300-70-4**, Lithium nickel oxide 56525-42-9, Methyl propyl carbonate, uses **90076-65-6** **131651-65-5**, Lithium nonafluorobutanesulfonate **162684-16-4**, Lithium manganese nickel oxide **193215-00-8**, Cobalt lithiummanganese nickel oxide Co0.1LiMn0.2Ni0.7O2
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery**)

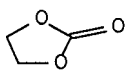
IT **67-71-0**, Methyl sulfone **77-77-0**, Vinyl sulfone **78-67-1**, 2,2'-Azobisisobutyronitrile **94-36-0**, Benzoyl peroxide, uses **105-64-6**, Diisopropyl peroxy dicarbonate **105-74-8**, Lauroyl peroxide **126-33-0**, Tetramethylene sulfone **127-63-9**, Phenyl sulfone **620-32-6**, Benzyl sulfone **1561-49-5**, Dicyclohexylperoxy dicarbonate **1712-87-4**, m-Toluoyl peroxide **3006-82-4**, tert-Butylperoxy-2-ethyl hexanoate **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 26748-41-4 **28452-93-9**, Butadiene sulfone **32752-09-3**, Isobutyl peroxide **92177-99-6**, 3,3,5-Trimethylhexanoyl peroxide
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium **battery**)

IT **79-10-7DP**, **Acrylic** acid, reaction product with dipentaerythritol and ε-caprolactone and butylcarbonic acid
126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone and **acrylic** acid and butylcarbonic acid
502-44-3DP, ε-Caprolactone, reaction product with dipentaerythritol and **acrylic** acid and butylcarbonic acid
10411-26-4DP, MonoButylcarbonate, reaction product with dipentaerythritol and ε-caprolactone and **acrylic** acid

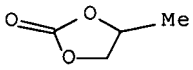
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium **battery**)

IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **7791-03-9**, Lithium perchlorate **10377-51-2**, Lithium iodide (LiI) **14024-11-4**, Lithium tetrachloroaluminate **14283-07-9**, Lithium tetrafluoroborate **18424-17-4**, Lithium hexafluoroantimonate **21324-40-3**, Lithium hexafluorophosphate **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate **39300-70-4**, Lithium nickel oxide **90076-65-6 131651-65-5**, Lithium nonafluorobutanesulfonate **162684-16-4**, Lithium manganese nickel oxide **193215-00-8**, Cobalt lithiummanganese nickel oxide Co0.1LiMn0.2Ni0.7O2
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium **battery**)

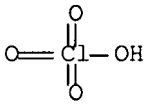
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

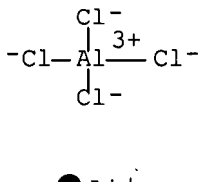


RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)

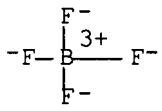


RN 10377-51-2 HCAPLUS
CN Lithium iodide (LiI) (CA INDEX NAME)

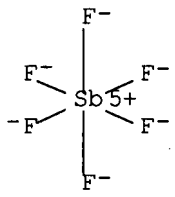
RN 14024-11-4 HCAPLUS
CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)



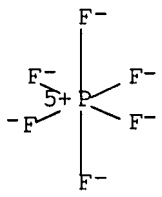
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



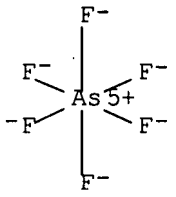
RN 18424-17-4 HCAPLUS
CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



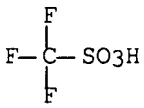
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



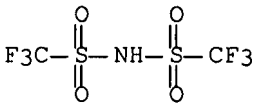
RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 39300-70-4 HCAPLUS
CN Lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Li	x	7439-93-2

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1) (CA INDEX NAME)

$HO_3S-(CF_2)_3-CF_3$

● Li

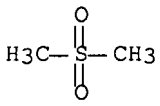
RN 162684-16-4 HCAPLUS
CN Lithium manganese nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Mn	x	7439-96-5
Li	x	7439-93-2

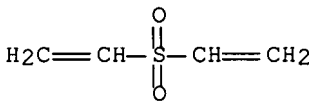
RN 193215-00-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.1LiMn0.2Ni0.7O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.1	7440-48-4
Ni	0.7	7440-02-0
Mn	0.2	7439-96-5
Li	1	7439-93-2

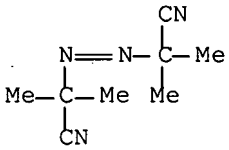
IT **67-71-0**, Methyl sulfone **77-77-0**, Vinyl sulfone **78-67-1**, 2,2'-Azobisisobutyronitrile **94-36-0**, Benzoyl peroxide, uses **105-64-6**, Diisopropyl peroxy dicarbonate **105-74-8**, Lauroyl peroxide **126-33-0**, Tetramethylene sulfone **127-63-9**, Phenyl sulfone **620-32-6**, Benzyl sulfone **1561-49-5**, Dicyclohexylperoxy dicarbonate **1712-87-4**, m-Toluoyl peroxide **3006-82-4**, tert-Butylperoxy-2-ethyl hexanoate **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate **28452-93-9**, Butadiene sulfone **32752-09-3**, Isobutyl peroxide **92177-99-6**, 3,3,5-Trimethylhexanoyl peroxide
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium **battery**)
RN 67-71-0 HCAPLUS
CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



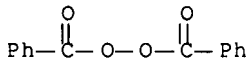
RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



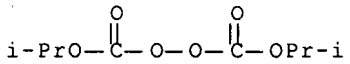
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



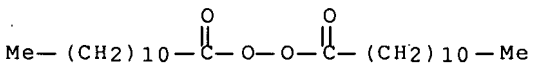
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



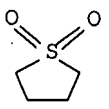
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



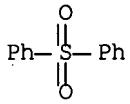
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



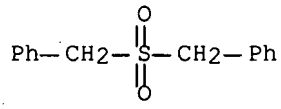
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



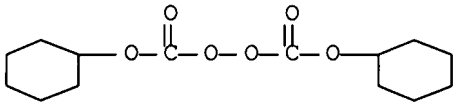
RN 127-63-9 HCAPLUS
CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



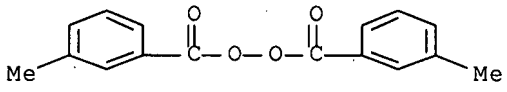
RN 620-32-6 HCAPLUS
CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



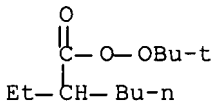
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



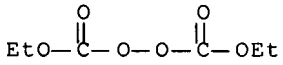
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



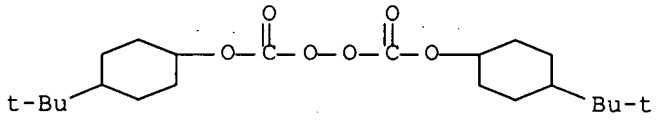
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



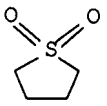
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



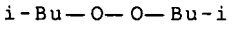
RN 28452-93-9 HCAPLUS
CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

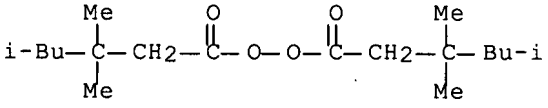
CRN 126-33-0
CMF C4 H8 O2 S



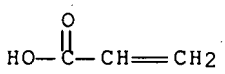
RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



IT **79-10-7DP, Acrylic** acid, reaction product with dipentaerythritol and ε-caprolactone and butylcarbonic acid
RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium **battery**)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



L135 ANSWER 6 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:182343 HCAPLUS Full-text
DN 140:202488
TI **Polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling
IN Lee, Yong-beom
PA **Samsung Sdi Co.,ltd.**, S. Korea
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004043298	A1	20040304	US 2003-440245	20030519 <--
	KR 2004020631	A	20040309	KR 2002-52280	20020831 <--
	CN 1479401	A	20040303	CN 2003-152463	20030704 <--
PRAI	KR 2002-52280	A	20020831 <--		

AB The invention concerns a **polymer electrolyte** that extends the cycle life, improves the safety, and reduces the swelling of a **battery**, compared with a **polymer electrolyte** containing a poly(alkylene oxide) **polymer**. Also, a lithium **battery** utilizes the **polymer electrolyte**. The **polymer electrolyte** contains a **polymerized** product from a **polymer electrolyte** forming composition containing a multifunctional isocyanurate monomer of a particular structure, a lithium salt, and a nonaq. organic **solvent**.

IC ICM **H01M0006-18**
INCL 429323000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **polymer electrolyte** lithium secondary **battery** improved safety reduced swelling
IT Peroxides, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(acyl, **polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)
IT Peroxides, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(alkyl, **polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)
IT Hydroperoxides
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(alkyl, tertiary, **polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)
IT **Secondary batteries**
(lithium; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT Esters, processes
Ketals
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(peroxy, **polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT Carbonates, processes
Peroxides, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(peroxycarbonates, **polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT **Battery electrolytes**
Polymerization catalysts
Safety
Swelling, physical
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT Carbon fibers, uses
Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT Azo compounds
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT **96-47-9**, 2-Methyltetrahydrofuran **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate **108-32-7**, Propylene carbonate 109-94-4, Ethyl formate **109-99-9**, Thf, uses 112-49-2, Triglyme 143-24-8, Tetraglyme 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 4824-75-3, Butylmethyl carbonate **7439-93-2**, Lithium, uses **7704-34-9**, Sulfur, uses **7704-34-9D**, Sulfur, compds. 7782-42-5, Graphite, uses **7791-03-9**, Lithium perchlorate **12190-79-3**, Cobalt lithium oxide colio2 **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate 27858-05-5, DiFluorobenzene **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate 35363-40-7, Ethyl propylcarbonate, uses **39300-70-4**, Lithium nickel oxide **39457-42-6**, Lithium manganese oxide **51177-06-1**, Chromium lithium oxide **52627-24-4**, Cobalt lithium oxide 56525-42-9, Methyl propylcarbonate, uses 73506-93-1, Diethoxyethane **90076-65-6** **131651-65-5** **132843-44-8** **654675-99-7**, Lithium boride fluoride libf6
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

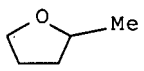
IT **42033-33-0P**, Tris(2-**acryloyloxy**)ethyl isocyanurate **homopolymer** **90802-77-0P** **93295-01-3P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

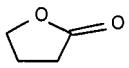
IT **15520-11-3**, Di(4-tert-butylcyclohexyl)peroxy dicarbonate
34099-48-4, Peroxydicarbonate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

IT **96-47-9**, 2-Methyltetrahydrofuran **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **109-99-9**, Thf, uses **7439-93-2**, Lithium, uses **7704-34-9**, Sulfur, uses **7704-34-9D**, Sulfur, compds. **7791-03-9**, Lithium perchlorate **12190-79-3**, Cobalt lithium oxide colio2 **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate **39300-70-4**, Lithium nickel oxide **39457-42-6**, Lithium manganese oxide **51177-06-1**, Chromium lithium oxide **52627-24-4**, Cobalt lithium oxide **90076-65-6** **131651-65-5** **132843-44-8** **654675-99-7**, Lithium boride fluoride libf6
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)

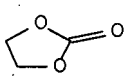
RN 96-47-9 HCAPLUS
CN Furan, tetrahydro-2-methyl- (CA INDEX NAME)



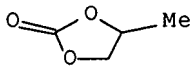
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 109-99-9 HCAPLUS
CN Furan, tetrahydro- (CA INDEX NAME)

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

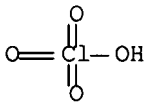
RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

S

RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

S

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



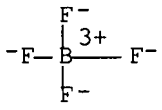
● Li

RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

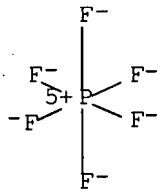
Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4

Li | 1 | 7439-93-2

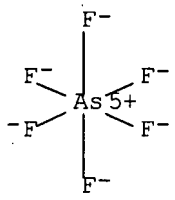
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



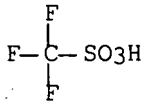
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 39300-70-4 HCAPLUS
CN Lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Ni	x	7440-02-0
Li	x	7439-93-2

RN 39457-42-6 HCAPLUS
CN Lithium manganese oxide (CA INDEX NAME)

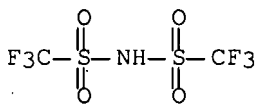
Component	Ratio	Component Registry Number
O	x	17778-80-2
Mn	x	7439-96-5
Li	x	7439-93-2

RN 51177-06-1 HCAPLUS
CN Chromium lithium oxide (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 52627-24-4 HCAPLUS
CN Cobalt lithium oxide (CA INDEX NAME)

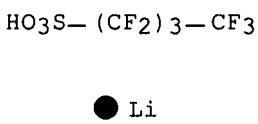
Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Li	x	7439-93-2

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

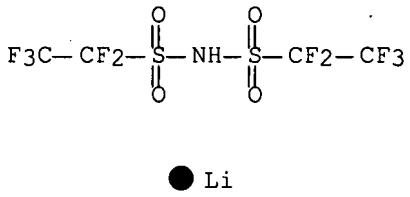


RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1)

(CA INDEX NAME)



RN 132843-44-8 HCAPLUS
CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(1,1,2,2,2-pentafluoroethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



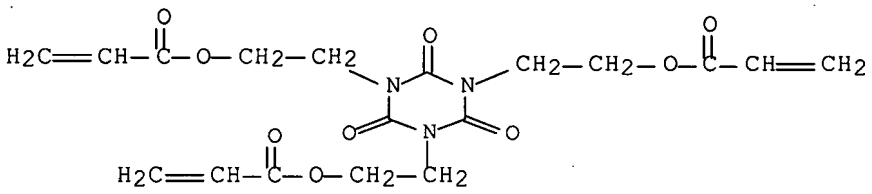
RN 654675-99-7 HCAPLUS
CN Boron lithium fluoride (BLiF6) (CA INDEX NAME)

Component	Ratio	Component Registry Number
F	6	14762-94-8
B	1	7440-42-8
Li	1	7439-93-2

IT **42033-33-0P**, Tris(2-**acryloyloxy**)ethyl isocyanurate **homopolymer 90802-77-0P 93295-01-3P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)
RN 42033-33-0 HCAPLUS
CN 2-Propenoic acid, 1,1',1''-[(2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

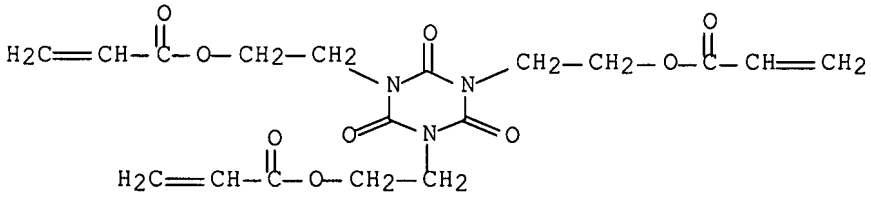
CRN 40220-08-4
CMF C18 H21 N3 O9



RN 90802-77-0 HCAPLUS
CN 2-Propenoic acid, (2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl ester, polymer with oxydi-2,1-ethanediyl di-2-propenoate (9CI) (CA INDEX NAME)

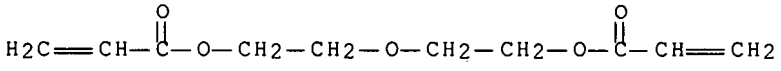
CM 1

CRN 40220-08-4
CMF C18 H21 N3 O9



CM 2

CRN 4074-88-8
CMF C10 H14 O5

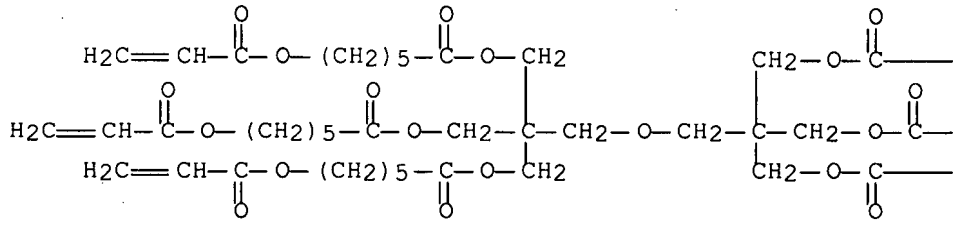


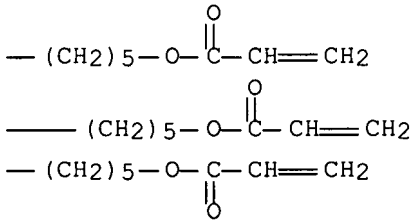
RN 93295-01-3 HCAPLUS
CN Hexanoic acid, 6-[(1-oxo-2-propenyl)oxy]-, 2-[[3-[[1-oxo-6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]-2,2-bis[[[1-oxo-6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]methyl]propoxy]methyl]-2-[[[1-oxo-6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]methyl]-1,3-propanediyl ester, polymer with (2,4,6-trioxo-1,3,5-triazine-1,3,5(2H,4H,6H)-triyl)tri-2,1-ethanediyl tri-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 93294-97-4
CMF C64 H94 O25

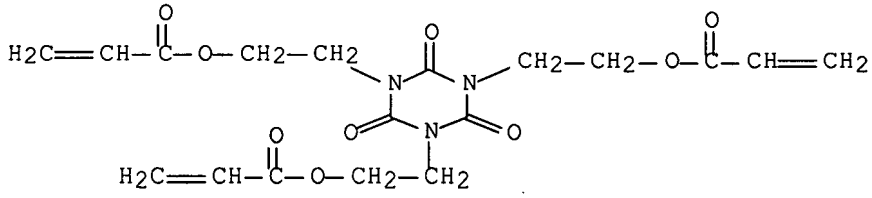
PAGE 1-A



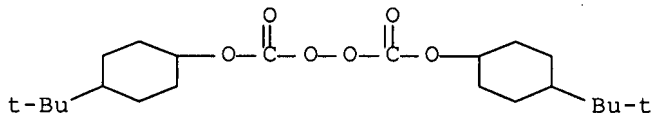


CM 2

CRN 40220-08-4
CMF C18 H21 N3 O9



IT **15520-11-3**, Di(4-tert-butylcyclohexyl)peroxy dicarbonate
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; **polymer electrolyte** for lithium secondary **battery** with improved safety and reduced swelling)
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



L135 ANSWER 7 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:119841 HCAPLUS Full-text
DN 140:166772
TI **Polymer electrolyte** for lithium-sulfur **battery**
IN **Hwang, Duck-chul; Lee, Kyoung-hee**
PA **Samsung Sdi Co., Ltd., S. Korea**
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI US 2004029016 A1 20040212 US 2003-635122 20030806 <--
KR 2004014163 A 20040214 KR 2003-28968 20030507 <--
JP 2004071560 A 20040304 JP 2003-279998 20030725 <--
CN 1495956 A 20040512 CN 2003-127275 20030807 <--
PRAI KR 2002-46580 A 20020807 <--
KR 2003-28968 A 20030507 <--

AB Disclosed is a **polymer electrolyte** for a lithium sulfur **battery**. The electrolyte includes a monomer with a **methacrylate** group, an initiator, an organic **solvent**, and a lithium salt.

IC ICM **H01M0010-40**
INCL 429317000; X42-918.9; X42-930.7
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST **polymer electrolyte** lithium sulfur **battery**
IT Polyesters, uses
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**hexacrylate**-based; **polymer electrolyte** for lithium-sulfur **battery**)
IT **Secondary batteries**
(lithium; **polymer electrolyte** for lithium-sulfur **battery**)
IT Intercalation compounds
RL: DEV (Device component use); USES (Uses)
(lithium; **polymer electrolyte** for lithium-sulfur **battery**)
IT Alcohols, uses
RL: DEV (Device component use); USES (Uses)
(polyhydric, esters; **polymer electrolyte** for lithium-sulfur **battery**)
IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)
IT 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)
IT 56-81-5, Glycerol, uses 110-71-4 149-32-6, Erythritol **646-06-0**, 1,3-Dioxolane **7439-93-2**, Lithium, uses **7439-93-2D**, Lithium, intercalation compound **7704-34-9**, Sulfur, uses **7704-34-9D**, Sulfur, compound **74432-42-1**, Lithium polysulfide **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)
IT **79-10-7DP**, **Acrylic** acid, reaction product with dipentaerythritol and ε-caprolactone and butylcarbonic acid
126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone and **acrylic** acid and butylcarbonic acid
502-44-3DP, ε-Caprolactone, reaction product with dipentaerythritol and **acrylic** acid and butylcarbonic acid
10411-26-4DP, reaction product with dipentaerythritol and ε-caprolactone and **acrylic** acid
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)

IT 180049-13-2, Aluminum boride nitride Albn
RL: MOA (Modifier or additive use); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)

IT **75-91-2**, tert-Butylhydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Benzoyl peroxide, processes **105-64-6**, Diisopropyl peroxy dicarbonate **105-74-8**, Lauroyl peroxide **110-05-4**, Di-tert-butyl peroxide **1561-49-5**, Dicyclo hexylperoxy dicarbonate **1712-87-4**, m-Toluoyl peroxide **2167-23-9**, 2,2-Di(tert-butylperoxy)butane **3006-82-4**, tert-Butyl peroxy-2-ethyl hexanoate **3025-88-5**, 2,5-Dihydroperoxy-2,5-dimethylhexane **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate **16066-38-9**, Di(n-propyl)peroxy-dicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxydicarbonate **19910-65-7**, Di(sec-butyl)peroxy dicarbonate **26748-47-0**, α-Cumyl peroxy neodecanoate **32752-09-3**, Isobutyl peroxide **52373-75-8** **55794-20-2**, Ethyl 3,3-di(tert-butylperoxy)butyrate **92177-99-6**, 3,3,5-Trimethylhexanoyl peroxide **95732-35-7** **116657-72-8**, tert-Butyl neodecanoate **118416-46-9**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; **polymer electrolyte** for lithium-sulfur **battery**)

IT **646-06-0**, 1,3-Dioxolane **7439-93-2**, Lithium, uses **7439-93-2D**, Lithium, intercalation compound **7704-34-9**, Sulfur, uses **7704-34-9D**, Sulfur, compound **74432-42-1**, Lithium polysulfide **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)

RN 646-06-0 HCAPLUS
CN 1,3-Dioxolane (CA INDEX NAME)

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

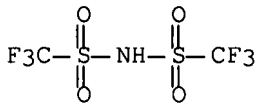
S

RN 7704-34-9 HCAPLUS
CN Sulfur (CA INDEX NAME)

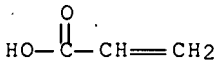
S

RN 74432-42-1 HCAPLUS
CN Lithium sulfide (Li2(Sx)) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



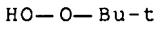
IT **79-10-7DP, Acrylic** acid, reaction product with dipentaerythritol and ε-caprolactone and butylcarbonic acid RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymer electrolyte** for lithium-sulfur **battery**)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



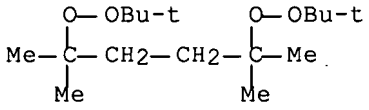
IT **75-91-2**, tert-Butylhydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Benzoyl peroxide, processes **105-64-6**, Diisopropyl peroxy dicarbonate **105-74-8**, Lauroyl peroxide **110-05-4**, Di-tert-butyl peroxide **1561-49-5**, Dicyclo hexylperoxy dicarbonate **1712-87-4**, m-Toluoyl peroxide **2167-23-9**, 2,2-Di(tert-butylperoxy)butane **3006-82-4**, tert-Butyl peroxy-2-ethyl hexanoate **3025-88-5**, 2,5-Dihydroperoxy-2,5-

dimethylhexane **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate **16066-38-9**, Di(n-propyl)peroxy-dicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxydicarbonate **19910-65-7**, Di(sec-butyl)peroxy dicarbonate **26748-47-0**, α-Cumyl peroxy neodecanoate **32752-09-3**, Isobutyl peroxide **52373-75-8** **55794-20-2**, Ethyl 3,3-di(tert-butylperoxy)butyrate **92177-99-6**, 3,3,5-Trimethylhexanoyl peroxide **95732-35-7** **116657-72-8**, tert-Butyl neodecanoate **118416-46-9**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; **polymer electrolyte** for lithium-sulfur **battery**)

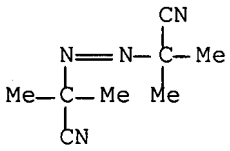
RN 75-91-2 HCAPLUS
CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)



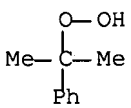
RN 78-63-7 HCAPLUS
CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



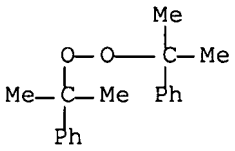
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



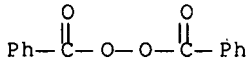
RN 80-15-9 HCAPLUS
CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



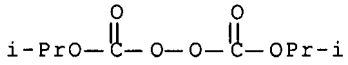
RN 80-43-3 HCAPLUS
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



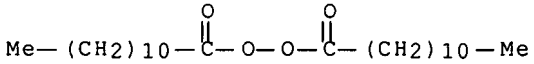
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



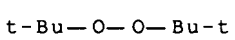
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



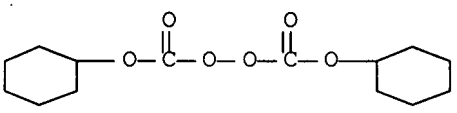
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



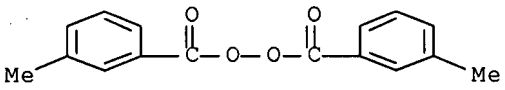
RN 110-05-4 HCAPLUS
CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



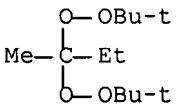
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



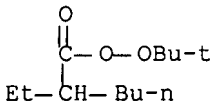
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



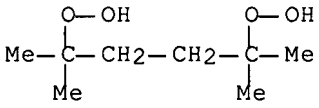
RN 2167-23-9 HCAPLUS
CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



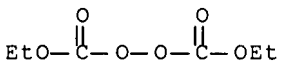
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



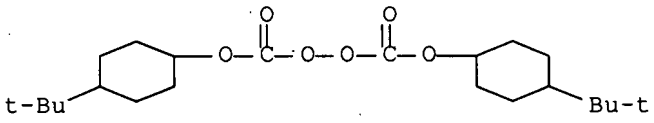
RN 3025-88-5 HCAPLUS
CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



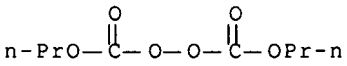
RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



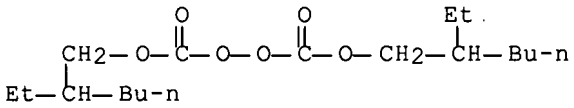
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



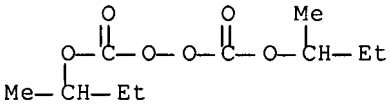
RN 16066-38-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



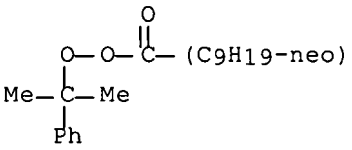
RN 16111-62-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



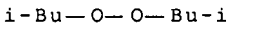
RN 19910-65-7 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



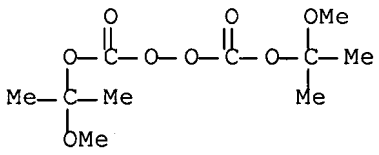
RN 26748-47-0 HCAPLUS
CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



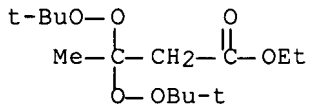
RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



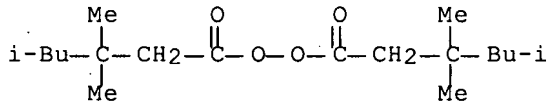
RN 52373-75-8 HCAPLUS
CN Peroxydicarbonic acid, bis(1-methoxy-1-methylethyl) ester (9CI) (CA INDEX NAME)



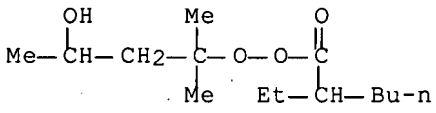
RN 55794-20-2 HCAPLUS
CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



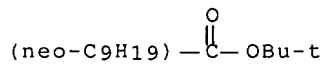
RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



RN 95732-35-7 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)

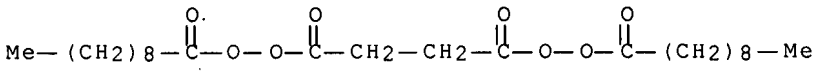


RN 116657-72-8 HCAPLUS
CN Neodecanoic acid, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



RN 118416-46-9 HCAPLUS

CN Peroxide, (1,4-dioxo-1,4-butanediyl)bis[(1-oxodecyl) (9CI) (CA INDEX NAME)



L135 ANSWER 8 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2004:59637 HCAPLUS Full-text
DN 140:79861
TI Method of fabrication of lithium secondary **battery**
IN Lee, Jin-young; **Lee**, **Kyoung-hee**
PA S. Korea
SO U.S. Pat. Appl. Publ., 7 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2004013944	A1	20040122	US 2003-617811	20030714 <--
	KR 2004006781	A	20040124	KR 2002-41169	20020715 <--
	JP 2004039642	A	20040205	JP 2003-274506	20030715 <--
	CN 1501542	A	20040602	CN 2003-165003	20030715 <--
PRAI	KR 2002-41169	A	20020715 <--		

AB A lithium secondary **battery** of the present invention comprises a pos. electrode; a neg. electrode; a separator interposed between the pos. and neg. electrodes; and an **electrolyte** on the separator, wherein the **electrolyte** includes a nonaq. organic **solvent** , a lithium salt, and a linear **polymer** having P=O bonds. The electrolyte improves the swelling characteristics of lithium secondary **batteries**. A lithium secondary **battery** with the electrolyte and a method for preparing the electrolyte and **battery** is described.

IC ICM **H01M0010-40**
INCL 429317000; 429307000; 429338000; 429342000; 429314000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium secondary **battery** fabrication
IT Aromatic hydrocarbons, uses
RL: DEV (Device component use); USES (Uses)
(C1-10 alkyl substituted; method of fabrication of lithium secondary **battery**)
IT **Secondary batteries**
(lithium; method of fabrication of lithium secondary **battery**)
IT **Battery electrolytes**
Swelling, physical
(method of fabrication of lithium secondary **battery**)
IT Esters, uses
Ethers, uses
Ketones, uses
RL: DEV (Device component use); USES (Uses)
(method of fabrication of lithium secondary **battery**)
IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(method of fabrication of lithium secondary **battery**)
IT 71-43-2, Benzene, uses **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate **108-32-7**, Propylene carbonate 108-88-3, Toluene, uses 462-06-6, Fluorobenzene 463-79-6D, Carbonic acid, cyclic

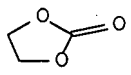
compds. 463-79-6D, Carbonic acid, linear compound 463-79-6D, Carbonic acid, organic compound 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate **7447-41-8**, Lithium chloride (LiCl), uses **7791-03-9**, Lithium perchlorate **10377-51-2**, Lithium iodide (LiI) **14024-11-4**, Lithium tetrachloroaluminate **14283-07-9**, Lithium tetrafluoroborate **18424-17-4**, Lithium hexafluoroantimonate **21324-40-3**, Lithium hexafluorophosphate 25496-08-6, Fluorotoluene 27359-10-0, Trifluorotoluene **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses **37220-89-6**, Lithium aluminate 56525-42-9, Methyl propyl carbonate, uses **90076-65-6** **131651-65-5**, Lithium nonafluorobutanesulfonate
RL: DEV (Device component use); USES (Uses)
(method of fabrication of lithium secondary **battery**)

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(method of fabrication of lithium secondary **battery**)

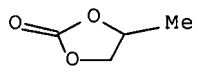
IT **78-67-1**, Azobisisobutyronitrile 682-30-4, Diethyl vinyl phosphonate 4472-22-4, Dipropyl vinyl phosphonate 4645-32-3, Dimethyl vinyl phosphonate 4851-64-3, Diethyl vinyl phosphate **24599-21-1** 41891-54-7, Triethyl 3-methyl-4-phosphonocrotonate 108554-72-9 113187-28-3, Allyl diethyl phosphonoacetate
RL: MOA (Modifier or additive use); USES (Uses)
(method of fabrication of lithium secondary **battery**)

IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **7447-41-8**, Lithium chloride (LiCl), uses **7791-03-9**, Lithium perchlorate **10377-51-2**, Lithium iodide (LiI) **14024-11-4**, Lithium tetrachloroaluminate **14283-07-9**, Lithium tetrafluoroborate **18424-17-4**, Lithium hexafluoroantimonate **21324-40-3**, Lithium hexafluorophosphate **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate **37220-89-6**, Lithium aluminate **90076-65-6** **131651-65-5**, Lithium nonafluorobutanesulfonate
RL: DEV (Device component use); USES (Uses)
(method of fabrication of lithium secondary **battery**)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



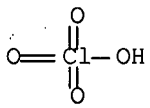
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 7447-41-8 HCAPLUS
CN Lithium chloride (LiCl) (CA INDEX NAME)

Cl—Li

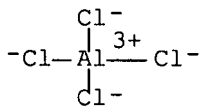
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



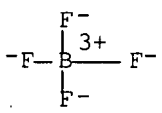
RN 10377-51-2 HCAPLUS
CN Lithium iodide (LiI) (CA INDEX NAME)

I—Li

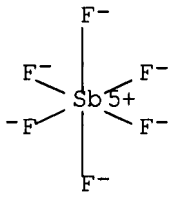
RN 14024-11-4 HCAPLUS
CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)



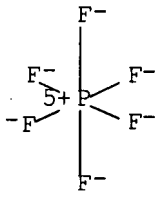
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



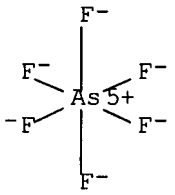
RN 18424-17-4 HCAPLUS
CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



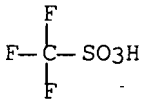
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



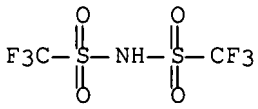
RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



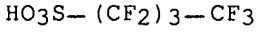
RN 37220-89-6 HCAPLUS
CN Aluminum lithium oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Li	x	7439-93-2
Al	x	7429-90-5

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

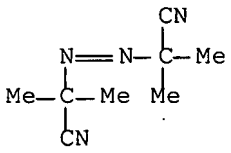


RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1) (CA INDEX NAME)

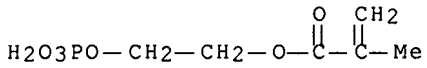


IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(method of fabrication of lithium secondary **battery**)
RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

IT **78-67-1**, Azobisisobutyronitrile **24599-21-1**
RL: MOA (Modifier or additive use); USES (Uses)
(method of fabrication of lithium secondary **battery**)
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 24599-21-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-(phosphonooxy)ethyl ester (CA INDEX NAME)



L135 ANSWER 9 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:989967 HCAPLUS Full-text
DN 140:29515
TI **Polymer electrolyte** with effective leakage resistance for lithium **battery**
IN **Lee, Kyoung-hee**; Kim, Ki-ho
PA **Samsung SDI Co., Ltd, S. Korea**
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003232240	A1	20031218	US 2003-461489	20030616 <--
US 7226701	B2	20070605		
KR 2003097009	A	20031231	KR 2002-34130	20020618 <--
CN 1479402	A	20040303	CN 2003-152467	20030618 <--
PRAI KR 2002-34130	A	20020618 <--		

AB A **polymer electrolyte** has improved leakage resistance and a lithium **battery** uses the **polymer electrolyte**. The **polymer electrolyte** includes a **polymerization** product of a **polymer electrolyte** forming composition that includes a multifunctional **acrylate** based compound, at least one selected from the group consisting of polyalkylene glycol di(meth)**acrylates** and polyalkylene glycol (meth) **acrylates**, and an **electrolytic** solution containing a lithium salt and an organic **solvent**.
IC ICM **H01M0006-00**
INCL 429122000; 429188000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery polymer electrolyte** effective leakage resistance
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(**acrylate**-terminated; **polymer electrolyte** with effective leakage resistance for lithium **battery**)
IT **Polymerization**
(irradiation; **polymer electrolyte** with effective leakage resistance for lithium **battery**)
IT **Secondary batteries**

(lithium; **polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT **Battery electrolytes**
Leak
Polymer electrolytes
Polymerization catalysts
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT Carbon fibers, uses
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT 102-71-6, Triethanolamine, uses 102-82-9, Tributylamine 103-83-3, N-Benzyldimethylamine 121-44-8, Triethylamine, uses 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT 126-58-9DP, Dipentaerythritol, derivative, reaction product with **acrylic** acid and butylcarboxylic acid 126-58-9DP, Dipentaerythritol, with pentyl alc.-substituted terminal hydroxy groups
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT **96-47-9**, 2-Methyltetrahydrofuran **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate **108-32-7**, Propylene carbonate 109-94-4, Ethyl formate **109-99-9**, Thf, uses 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate **7791-03-9**, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene **12190-79-3**, Cobalt lithium oxide colio2 **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **33454-82-9**, Lithium triflate 73506-93-1, Diethoxyethane **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

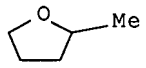
IT **9056-77-3DP**, Polyethylene glycol **methacrylate**, reaction product with dipentaerythritol derivative and **acrylic** acid and butylcarboxylic acid **25852-47-5DP**, Polyethylene glycol **dimethacrylate**, reaction product with dipentaerythritol derivative and **acrylic** acid and butylcarboxylic acid
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT **75-91-2**, tert-Butyl hydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Dibenzoyl peroxide, uses **105-64-6**, Diisopropyl peroxydicarbonate **105-74-8**, Dilauroyl peroxide **110-05-4**, Di-tert-butyl peroxide 762-12-9, Didecanoyl peroxide **1561-49-5**, Dicyclohexyl peroxy dicarbonate **1712-87-4**, m-Toluoyl peroxide **2167-23-9**, 2,2-Di-(tert-butylperoxy)butane 2279-96-1, Peroxysuccinic acid **3025-88-5**, 2,5-Dihydroperoxy-2,5-dimethylhexane **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)peroxydicarbonate 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane **16066-38-9**, Di(n-propyl)peroxydicarbonate **16111-62-9**, Di(2-

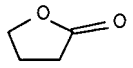
ethylhexyl)peroxydicarbonate **19910-65-7**, Di(sec-butyl)peroxydicarbonate 25906-27-8 **26748-47-0**, α-Cumyl peroxyneodecanoate **32752-09-3**, Isobutyl peroxide **52373-75-8** **55794-20-2**, Ethyl 3,3-di-(tert-butylperoxy)butyrate **92177-99-6**, 3,3,5-Trimethylhexanoyl peroxide **95732-35-7**
RL: CAT (Catalyst use); USES (Uses)
(**polymerization** initiator; **polymer electrolyte** with effective leakage resistance for lithium **battery**)

IT **96-47-9**, 2-Methyltetrahydrofuran **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **109-99-9**, Thf, uses **7791-03-9**, Lithium perchlorate **12190-79-3**, Cobalt lithium oxide colio2 **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **33454-82-9**, Lithium triflate **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)

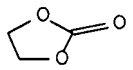
RN 96-47-9 HCAPLUS
CN Furan, tetrahydro-2-methyl- (CA INDEX NAME)



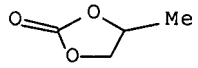
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

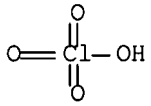


RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 109-99-9 HCAPLUS
CN Furan, tetrahydro- (CA INDEX NAME)

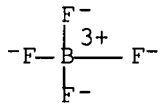
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



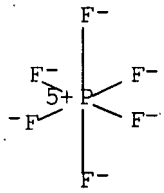
RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

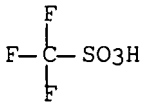
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



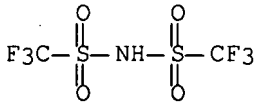
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



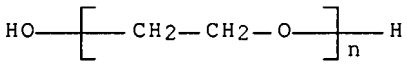
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



IT **9056-77-3DP**, Polyethylene glycol **methacrylate**, reaction product with dipentaerythritol derivative and **acrylic** acid and butylcarboxylic acid **25852-47-5DP**, Polyethylene glycol **dimethacrylate**, reaction product with dipentaerythritol derivative and **acrylic** acid and butylcarboxylic acid
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymer electrolyte** with effective leakage resistance for lithium **battery**)
RN 9056-77-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy-, 2-methyl-2-propenoate (CA INDEX NAME)

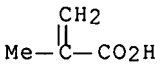
CM 1

CRN 25322-68-3
CMF (C2 H4 O)n H2 O
CCI PMS

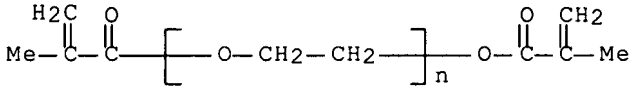


CM 2

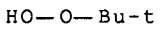
CRN 79-41-4
CMF C4 H6 O2



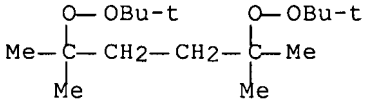
RN 25852-47-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



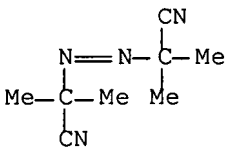
IT **75-91-2**, tert-Butyl hydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Dibenzoyl peroxide, uses **105-64-6**, Diisopropyl peroxydicarbonate **105-74-8**, Dilauroyl peroxide **110-05-4**, Di-tert-butyl peroxide **1561-49-5**, Dicyclohexyl peroxy dicarbonate **1712-87-4**, m-Toluoyl peroxide **2167-23-9**, 2,2-Di-(tert-butylperoxy)butane **3025-88-5**, 2,5-Dihydroperoxy-2,5-dimethylhexane **14666-78-5** **15520-11-3**, Bis(4-tert-butylcyclohexyl)peroxydicarbonate **16066-38-9**, Di(n-propyl)peroxydicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxydicarbonate **19910-65-7**, Di(sec-butyl)peroxydicarbonate **26748-47-0**, α-Cumyl peroxyneodecanoate **32752-09-3**, Isobutyl peroxide **52373-75-8** **55794-20-2**, Ethyl 3,3-di-(tert-butylperoxy)butyrate **92177-99-6**, 3,3,5-Trimethylhexanoyl peroxide **95732-35-7**
RL: CAT (Catalyst use); USES (Uses)
(**polymerization** initiator; **polymer electrolyte** with effective leakage resistance for lithium **battery**)
RN 75-91-2 HCAPLUS
CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)



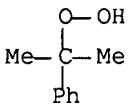
RN 78-63-7 HCAPLUS
CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



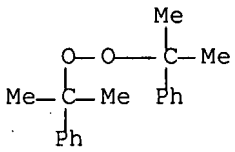
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



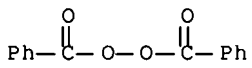
RN 80-15-9 HCAPLUS
CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



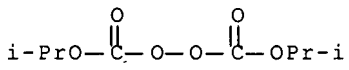
RN 80-43-3 HCAPLUS
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



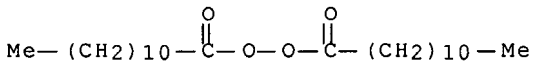
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



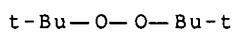
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



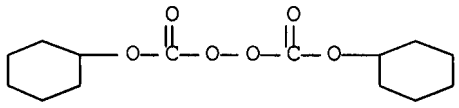
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



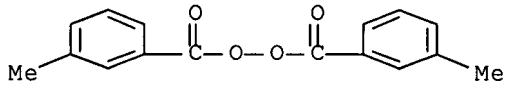
RN 110-05-4 HCAPLUS
CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



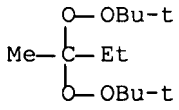
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



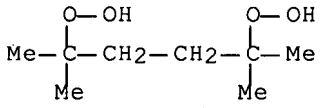
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



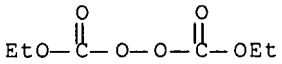
RN 2167-23-9 HCAPLUS
CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



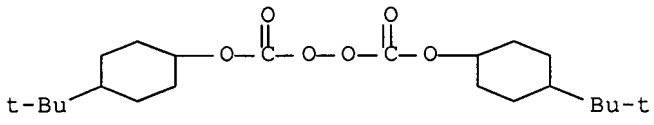
RN 3025-88-5 HCAPLUS
CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



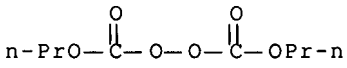
RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



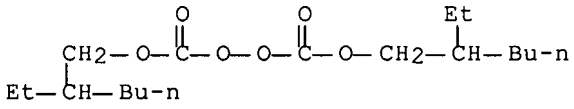
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



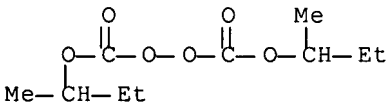
RN 16066-38-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



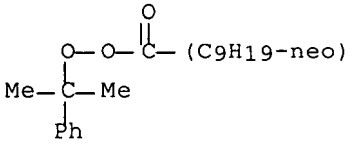
RN 16111-62-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



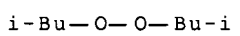
RN 19910-65-7 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



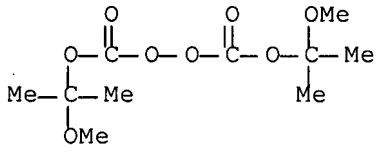
RN 26748-47-0 HCAPLUS
CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



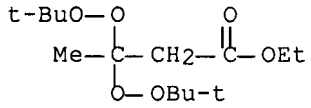
RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



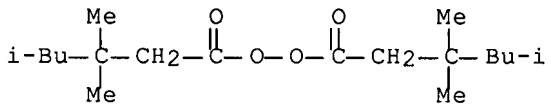
RN 52373-75-8 HCAPLUS
CN Peroxydicarbonic acid, bis(1-methoxy-1-methylethyl) ester (9CI) (CA INDEX NAME)



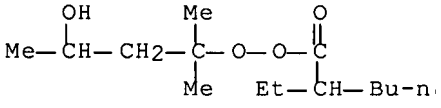
RN 55794-20-2 HCAPLUS
CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



RN 95732-35-7 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	2000			JP 2000311516	HCAPLUS
Jung	2003			US 20030157411 A1	HCAPLUS
Kojima	2001			US 6174626 B1	HCAPLUS

L135 ANSWER 10 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:796195 HCAPLUS Full-text
DN 139:294681
TI Electrolyte for lithium **battery** to reduce overcharge and improve electrochemical characteristics
IN Kim, Jun-Ho; Lee, Ha-Young; Choy, Sang-Hoon; Kim, Ho-Sung; Noh, Hyeong-Gon
PA **Samsung SDI Co., Ltd.**, S. Korea
SO U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003190529	A1	20031009	US 2003-393294	20030321 <--
	US 7205073	B2	20070417		
	KR 2003079310	A	20031010	KR 2002-18264	20020403 <--
	CN 1449070	A	20031015	CN 2003-108529	20030328 <--
	JP 2003297426	A	20031017	JP 2003-100349	20030403 <--
PRAI	KR 2002-18264	A	20020403 <--		

OS MARPAT 139:294681
AB An **electrolyte** for a lithium **battery** includes a nonaq. organic **solvent**, a lithium salt, and an additive comprising (a) a compound represented by the formula [(R1)nC6H(6-n+m)(X)m], and (b) a compound selected from the group consisting of a sulfone-based compound, a poly(ester)(meth)**acrylate**, a **polymer** of poly(ester)(meth)**acrylate**, and a mixture thereof: wherein R1 is a C1-10 alkyl, a C 1-10 alkoxy, or a C6-10 aryl, and preferably a Me, Et, or methoxy, X is a halogen, and m and n are integers ranging from 1 to 5, where m+n is less than or equal to 6.
IC ICM **H01M0006-18**
INCL 429307000; 429309000; 429326000; 429322000; 429323000; 429330000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium **battery** electrolyte overcharge lowering
IT **Battery electrolytes**
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
IT **Secondary batteries**
(lithium; electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
IT Peroxides, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic; electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
IT Alcohols, uses
RL: MOA (Modifier or additive use); USES (Uses)
(trihydric; electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
IT 3087-37-4, Tetrapropyltitanate
RL: CAT (Catalyst use); USES (Uses)
(electrolyte for lithium **battery** to reduce overcharge and improve electrochem. characteristics)
IT 71-43-2, Benzene, uses **96-49-1**, Ethylene carbonate 105-58-8,

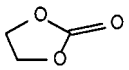
Diethyl carbonate 108-32-7, Propylene carbonate 108-88-3, Toluene, uses 462-06-6, Fluorobenzene 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 1330-20-7, Xylene, uses 4437-85-8, Butylene carbonate 7447-41-8 , Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium aluminate (Li5AlO4) 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 27359-10-0, Trifluorotoluene 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate, uses 56525-42-9, Methyl propyl carbonate, uses 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT 126-58-9DP, Dipentaerythritol, reaction product with ε-caprolactone 502-44-3DP, ε-Caprolactone, reaction product with dipentaerythritol 609772-45-4P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

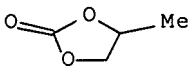
IT 56-81-5, Glycerol, uses 67-71-0, Methyl sulfone 77-77-0***, Vinyl sulfone 79-10-7D, Acrylic acid, ω-fatty acid esters C2-C21 79-41-4D, Methacrylic acid, ω-fatty acid esters C2-C21 94-36-0, Benzoyl peroxide, uses 104-92-7, 4-Bromoanisole 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 149-32-6, Erythritol 452-10-8, 2,4-Difluoroanisole 456-49-5, 3-Fluoroanisole 459-60-9, 4-Fluoroanisole 620-32-6, Benzyl sulfone 623-12-1, 4-Chloroanisole 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 2398-37-0, 3-Bromoanisole 2845-89-8, 3-Chloroanisole 3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide 93343-10-3, 3,5-Difluoroanisole 202925-08-4, 3-Chloro-5-fluoroanisole 609365-67-5
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 7447-41-8, Lithium chloride (LiCl), uses 7791-03-9, Lithium perchlorate 10377-51-2, Lithium iodide (LiI) 12355-58-7, Lithium aluminate (Li5AlO4) 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate
RL: DEV (Device component use); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

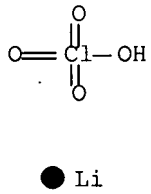


RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



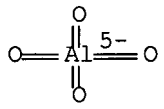
RN 7447-41-8 HCAPLUS
CN Lithium chloride (LiCl) (CA INDEX NAME)

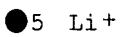
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



RN 10377-51-2 HCAPLUS
CN Lithium iodide (LiI) (CA INDEX NAME)

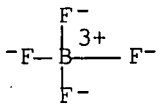
RN 12355-58-7 HCAPLUS
CN Aluminate (AlO45-), pentalithium, (T-4)- (9CI) (CA INDEX NAME)



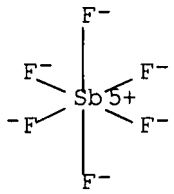


RN 14283-07-9 HCAPLUS

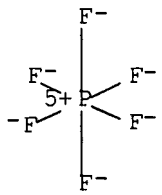
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



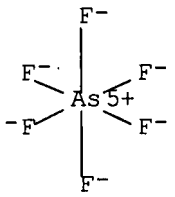
RN 18424-17-4 HCAPLUS
CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



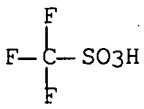
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



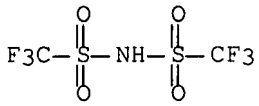
RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



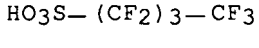
RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



RN 131651-65-5 HCAPLUS
CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (1:1) (CA INDEX NAME)

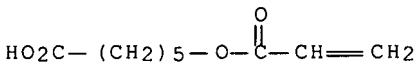


IT 609772-45-4P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)
RN 609772-45-4 HCAPLUS

CN Hexanoic acid, 6-[(1-oxo-2-propenyl)oxy]-, tetraester with 2,2'-[oxybis(methylene)]bis[2-(hydroxymethyl)-1,3-propanediol] bis(butyl carbonate) (9CI) (CA INDEX NAME)

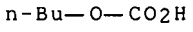
CM 1

CRN 93365-33-4
CMF C9 H14 O4



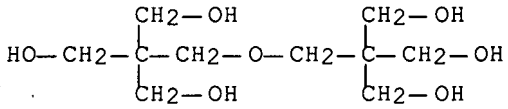
CM 2

CRN 10411-26-4
CMF C5 H10 O3



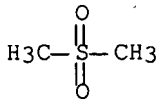
CM 3

CRN 126-58-9
CMF C10 H22 O7

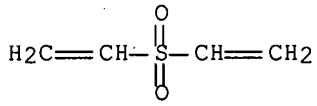


IT 67-71-0, Methyl sulfone 77-77-0, Vinyl sulfone 79-10-7D, Acrylic acid, ω-fatty acid esters C2-C21 79-41-4D, Methacrylic acid, ω-fatty acid esters C2-C21 94-36-0, Benzoyl peroxide, uses 105-64-6, Diisopropyl peroxy dicarbonate 105-74-8, Lauroyl peroxide 126-33-0, Tetramethylene sulfone 127-63-9, Phenyl sulfone 620-32-6, Benzyl sulfone 1561-49-5, Dicyclohexyl peroxy dicarbonate 1712-87-4, m-Toluoyl peroxide 3006-82-4, tert-Butylperoxy-2-ethyl-hexanoate 14666-78-5 15520-11-3, Bis(4-tert-butylcyclohexyl)peroxy dicarbonate 28452-93-9, Butadiene sulfone 32752-09-3, Isobutyl peroxide 92177-99-6, 3,3,5-Trimethylhexanoyl peroxide
RL: MOA (Modifier or additive use); USES (Uses)
(electrolyte for lithium battery to reduce overcharge and improve electrochem. characteristics)

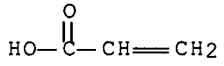
RN 67-71-0 HCAPLUS
CN Methane, 1,1'-sulfonylbis- (CA INDEX NAME)



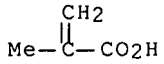
RN 77-77-0 HCAPLUS
CN Ethene, 1,1'-sulfonylbis- (CA INDEX NAME)



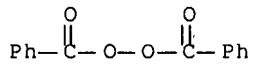
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



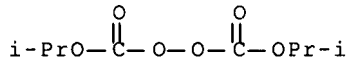
RN 79-41-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



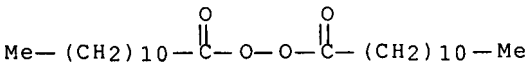
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



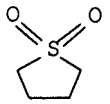
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)



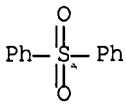
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



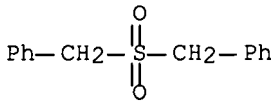
RN 126-33-0 HCAPLUS
CN Thiophene, tetrahydro-, 1,1-dioxide (CA INDEX NAME)



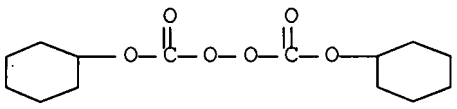
RN 127-63-9 HCAPLUS
CN Benzene, 1,1'-sulfonylbis- (CA INDEX NAME)



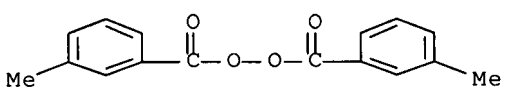
RN 620-32-6 HCAPLUS
CN Benzene, 1,1'-[sulfonylbis(methylene)]bis- (CA INDEX NAME)



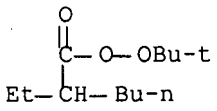
RN 1561-49-5 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dicyclohexyl ester (CA INDEX NAME)



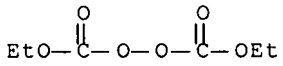
RN 1712-87-4 HCAPLUS
CN Peroxide, bis(3-methylbenzoyl) (9CI) (CA INDEX NAME)



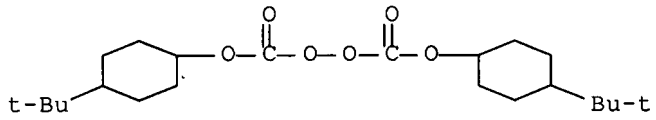
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



RN 14666-78-5 HCAPLUS
CN Peroxydicarbonic acid, diethyl ester (CA INDEX NAME)



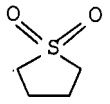
RN 15520-11-3 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis[4-(1,1-dimethylethyl)cyclohexyl] ester (CA INDEX NAME)



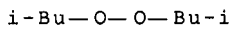
RN 28452-93-9 HCAPLUS
CN Thiophene, dihydro-, 1,1-dioxide (CA INDEX NAME)

CM 1

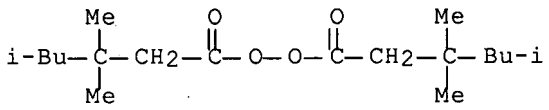
CRN 126-33-0
CMF C4 H8 O2 S



RN 32752-09-3 HCAPLUS
CN Peroxide, bis(2-methylpropyl) (CA INDEX NAME)



RN 92177-99-6 HCAPLUS
CN Peroxide, bis(3,3,5-trimethyl-1-oxohexyl) (9CI) (CA INDEX NAME)



L135 ANSWER 11 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:437556 HCAPLUS Full-text
DN 139:263214
TI Silicone as a binder in composite electrolytes
AU Inada, Taro; Takada, Kazunori; Kajiyama, Akihisa; Sasaki, Hideki; Kondo, Shigeo; Watanabe, Mamoru; Murayama, Masahiro; Kanno, Ryoji
CS Advanced Materials Laboratory, National Institute for Materials Science, Tsukuba, Ibaraki, 305-0044, Japan
SO Journal of Power Sources (2003), 119-121, 948-950
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier Science B.V.
DT Journal
LA English
AB A liquid silicone was used as a binder to make composite solid electrolytes from lithium-ion conductive inorg. solid electrolytes (ISEs): an oxysulfide glass, 0.01 Li3PO4- 0.63 Li2S- 0.36 SiS2 and/or a lithium germanium thio-phosphate, Li3.25Ge0.25P0.75S4. Ionic conductivities of the composites were of the order of 10-4 Scm-1, even when the silicone was enriched to 10% (volume/volume). However, the composite with styrene-butadiene block co-polymer (SBR) or polypropylene oxide-polyethylene oxide (PO-EO) co-polymer as binder showed much lower conductivity In the composite electrolyte, the silicone rubber must partly cover the surface of the ISE particles because the composite electrolyte is molded before the vulcanization of the fluid liquid silicone; and thus, it must rarely interfere with the conduction between the ISE particles. Hydrocarbons are suitable in the preparation process of the composite solid electrolyte (CSE).
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 36, 38, 76
ST silicone rubber binder composite electrolyte SBR polyoxyalkylene solid battery; ionic cond lithium ion germanium phosphate sulfide thiosulfide glass
IT Battery electrolytes
Binders
Polymer electrolytes
(effect of silicone rubber as binder in composite electrolytes)
IT 25852-47-5P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(effect of silicone rubber as binder in composite electrolytes)
IT 94-36-0, Benzoyl peroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)
IT 64-17-5, Ethanol, uses 67-64-1, Acetone, uses 75-05-8, Acetonitrile, uses 108-88-3, Toluene, uses 142-82-5, n-Heptane, uses
RL: NUU (Other use, unclassified); USES (Uses)
(effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)
IT 55326-82-4, Lithium titanium sulfide (LiTiS2)
RL: DEV (Device component use); USES (Uses)

(electrode; effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)

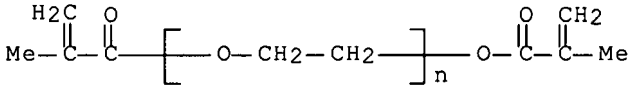
IT 10377-52-3P, Lithium phosphate (Li3PO4) 12136-58-2P, Lithium sulfide (Li2S) 13759-10-9P, Silicon sulfide (SiS2)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(glass, phosphate sulfide, electrolyte composite with silicone rubber, CP-2000, or SBR; effect of silicone rubber as binder in composite electrolytes)

IT 361393-39-7
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(glass, thiophosphate sulfide (thio-LISICON), electrolyte composite with silicone rubber, CP-2000, or SBR; effect of silicone rubber as binder in composite electrolytes)

IT 25852-47-5P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(effect of silicone rubber as binder in composite electrolytes)

RN 25852-47-5 HCAPLUS

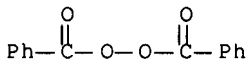
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



IT 94-36-0, Benzoyl peroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)

RN 94-36-0 HCAPLUS

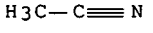
CN Peroxide, dibenzoyl (CA INDEX NAME)



IT 75-05-8, Acetonitrile, uses
RL: NUU (Other use, unclassified); USES (Uses)
(effect of solvent pretreatment on ionic conductivity of Li+-conducting glasses)

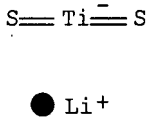
RN 75-05-8 HCAPLUS

CN Acetonitrile (CA INDEX NAME)

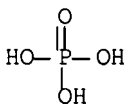


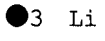
IT 55326-82-4, Lithium titanium sulfide (LiTiS2)
RL: DEV (Device component use); USES (Uses)
(electrode; effect of solvent pretreatment on ionic conductivity of

Li+-conducting glasses)
RN 55326-82-4 HCAPLUS
CN Titanate(1-), dithioxo-, lithium (9CI) (CA INDEX NAME)

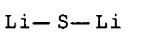


IT 10377-52-3P, Lithium phosphate (Li3PO4) 12136-58-2P, Lithium sulfide (Li2S) 13759-10-9P, Silicon sulfide (SiS2)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(glass, phosphate sulfide, electrolyte composite with silicone rubber, CP-2000, or SBR; effect of silicone rubber as binder in composite electrolytes)
RN 10377-52-3 HCAPLUS
CN Phosphoric acid, lithium salt (1:3) (CA INDEX NAME)

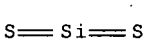




RN 12136-58-2 HCAPLUS
CN Lithium sulfide (Li2S) (CA INDEX NAME)



RN 13759-10-9 HCAPLUS
CN Silicon sulfide (SiS2) (CA INDEX NAME)



IT 361393-39-7
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(glass, thiophosphate sulfide (thio-LISICON), electrolyte composite with silicone rubber, CP-2000, or SBR; effect of silicone rubber as binder in composite electrolytes)
RN 361393-39-7 HCAPLUS
CN Germanium lithium phosphorotetrathioate sulfide (Ge0.25Li3.25(PS4)0.75S) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
PS4	0.75	22383-48-8
S	1	7704-34-9
Ge	0.25	7440-56-4
Li	3.25	7439-93-2

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Angell, C	1993	632	137	Nature	
Aotani, N	1994	68	35	Solid State Ion	HCAPLUS
Chalk, A	1965	87	16	J Am Chem Soc	HCAPLUS
Hirai, K	1996	79	349	J Am Ceram Soc	HCAPLUS
Inada, T	2001		250	Proceedings of the 2	
Inada, T	2003	158	275	Solid State Ion	HCAPLUS
Kanno, R	2001	148	A742	J Electrochem Soc	HCAPLUS
Kennedy, J	1986	133	2437	J Electrochem Soc	HCAPLUS
Kennedy, J	1987	69	252	J Solid State Chem	HCAPLUS
Kennedy, J	1988	28-30	726	Solid State Ion	
Mercier, R	1981	5	663	Solid State Ion	HCAPLUS
Pine, S	1987		99	Organic Chemistry, f	
Speier, J	1957	79	974	J Am Chem Soc	HCAPLUS
Wada, H	1983	18	189	Mater Res Bull	HCAPLUS
Whittingham, M	1978	12	41	Prog Solid State Che	HCAPLUS

L135 ANSWER 12 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:437468 HCAPLUS Full-text
DN 139:278951
TI Electrochemical properties of poly(tetra ethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries
AU Kim, Hyun-Soo; Shin, Jung-Han; Moon, Seong-In; Yun, Mun-Soo
CS Battery Research Group, Korea Electrotechnology Research Institute, Changwon, 641-120, S. Korea
SO Journal of Power Sources (2003), 119-121, 482-486
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier Science B.V.
DT Journal
LA English
AB The precursor for a gel polymer electrolyte (GPE) consisted of tetra (ethylene glycol) diacrylate monomer, benzoyl peroxide, and 1.1M LiPF6/EC:PC:EMC:DEC (30:20:30:20%). LiCoO2/graphite cells were prepared and their electrochem. properties were evaluated at various current densities and temps. The viscosity of the precursor containing 5 volume% tetra (ethylene glycol) diacrylate monomer was .apprx.4.6 mPa s. The ionic conductivity of the gel polymer electrolyte at 20° was .apprx.6.34 + 10-3 S cm-1. The gel polymer electrolyte had good electrochem. stability up to 4.5 V vs. Li/Li+. The capacity of the cell at 2.0 C rate was 74% of the discharge capacity at 0.2 C rate. The capacity of the cell at -10° was 81% of the discharge capacity at temperature of 20°. Discharge capacity of the cell with gel polymer electrolyte was stable with charge-discharge cycling.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38, 76
ST poly tetraethylene glycol diacrylate polymer gel electrolyte lithium ion; polymer secondary battery electrolyte carbonate discharge capacity cyclic

voltammetry
IT Carbon fibers, uses
RL: DEV (Device component use); USES (Uses)
(MCF, carbon fiber composite electrode with PVDF; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(composite electrodes with LiCoO2/Super P or MCF carbon fibers; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT Battery electrolytes
Cyclic voltammetry
Electric impedance
Gels
Polymer electrolytes
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT Secondary batteries
(lithium; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT Ionic conductivity
(of gel polymer electrolytes; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT Viscosity
(of monomer/electrolyte solns.; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT Polymerization
(radical; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT 7440-44-0, Super P, uses
RL: DEV (Device component use); USES (Uses)
(activated, composite electrode with LiCoO2/PVDF; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT 12190-79-3, Lithium cobalt oxide (LiCoO2)
RL: DEV (Device component use); USES (Uses)
(composite electrode with PVDF/Super P; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(composite electrode; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
IT 24937-79-9, PVDF
RL: DEV (Device component use); USES (Uses)
(composite electrodes with LiCoO2/Super P or MCF carbon fibers; electrochem. properties of poly(tetraethylene glycol diacrylate

)-based gel electrolytes for lithium-ion polymer batteries)

IT 94-36-0, Benzoyl peroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 12597-68-1, Stainless steel, uses
RL: DEV (Device component use); USES (Uses)
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 17831-71-9, Tetra (ethylene glycol) diacrylate
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 57619-91-7P, Tetraethylene glycol diacrylate homopolymer
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(gel polymer electrolyte with LiPF6/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 623-53-0, Ethyl methyl carbonate
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte gel with poly(TEGDA)/LiPF6/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte gel with poly(TEGDA)/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 25085-53-4, Celgard 2500
RL: DEV (Device component use); USES (Uses)
(separator; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

IT 7440-44-0, Super P, uses
RL: DEV (Device component use); USES (Uses)
(activated, composite electrode with LiCoO2/PVDF; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT 12190-79-3, Lithium cobalt oxide (LiCoO2)

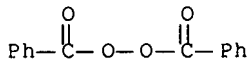
RL: DEV (Device component use); USES (Uses)
(composite electrode with PVDF/Super P; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 94-36-0, Benzoyl peroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



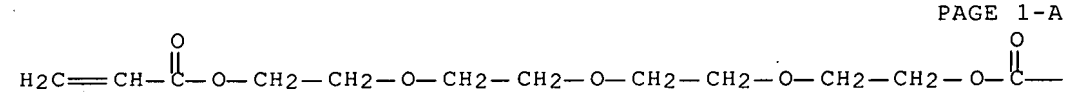
IT 7439-93-2, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

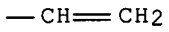
IT 17831-71-9, Tetra (ethylene glycol) diacrylate
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)

RN 17831-71-9 HCAPLUS
CN 2-Propenoic acid, 1,1'-[oxybis(2,1-ethanediyloxy-2,1-ethanediyl)] ester (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

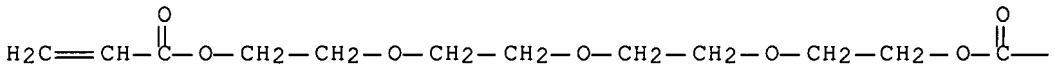


IT 57619-91-7P, Tetraethylene glycol diacrylate homopolymer
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(gel polymer electrolyte with LiPF6/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
RN 57619-91-7 HCAPLUS
CN 2-Propenoic acid, 1,1'-[oxybis(2,1-ethanediyloxy-2,1-ethanediyl)] ester, homopolymer (CA INDEX NAME)

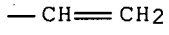
CM 1

CRN 17831-71-9
CMF C14 H22 O7

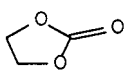
PAGE 1-A



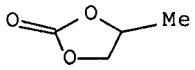
PAGE 1-B



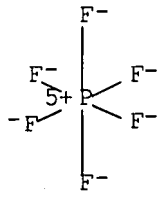
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte gel with poly(TEGDA)/LiPF6/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)
RL: DEV (Device component use); USES (Uses)
(polymer electrolyte gel with poly(TEGDA)/carbonate solvents; electrochem. properties of poly(tetraethylene glycol diacrylate)-based gel electrolytes for lithium-ion polymer batteries)
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Abraham, K	1990	137	L1657	J Electrochem Soc	
Alamgir, M	1993	140	L96	J Electrochem Soc	HCAPLUS
Arcella, V	1999	81-82	790	J Power Sources	HCAPLUS
Boudin, F	1999	81-82	804	J Power Sources	HCAPLUS
Dias, F	2000	88	169	J Power Sources	HCAPLUS
Fong, R	1990	137	2009	J Electrochem Soc	HCAPLUS
Huang, H	2001	148	A279	J Electrochem Soc	HCAPLUS
Kim, D	2000	87	78	J Power Sources	HCAPLUS
Kono, M	1999	146	1626	J Electrochem Soc	HCAPLUS
Levi, M	1999	146	1279	J Electrochem Soc	HCAPLUS
Quartarone, E	1998	43	1435	Electrochim Acta	HCAPLUS
Rarascon, J	1991	138	2864	J Electrochem Soc	
Scrosati, B	2000	147	1718	J Electrochem Soc	HCAPLUS
Wang, H	2000	147	2853	J Electrochem Soc	HCAPLUS

L135 ANSWER 13 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:435148 HCAPLUS Full-text
DN 138:388239
TI In situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochemical cells
IN Xing, Weibing; Takeuchi, Esther S.
PA USA
SO U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	US 2003104282	A1	20030605	US 2001-883	20011115 <--
PRAI	US 2001-883		20011115 <--		

AB A single step, in situ curing method for making gel polymer lithium ion rechargeable cells and batteries is disclosed. This method used a precursor solution consisting of monomers with multiple functionalities such as multiple acryloyl functionalities, a free-radical generating activator, nonaq. solvents such as ethylene carbonate and propylene carbonate, and a lithium salt such as LiPF6. The electrodes are prepared by slurry-coating a carbonaceous material such as graphite onto an anode current collector and a lithium transition metal oxide such as LiCoO2 onto a cathode current collector, resp. The electrodes, together with a highly porous separator, are then soaked with the polymer electrolyte precursor solution and sealed in a cell package under vacuum. The whole cell package is heated to in situ cure the polymer electrolyte precursor. The resulting lithium ion rechargeable cells with gelled polymer electrolyte demonstrate excellent electrochem. properties such as high efficiency in material utilization, high Coulombic efficiency, good rate capability, and good cyclability.

IC ICM H01M0010-40
ICS H01M0004-58; H01M0004-66
INCL 429303000; 429189000; 429231800; 429245000; 429231100; 029623100
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium battery gel polymer electrolyte in situ thermal polymn
IT Battery electrolytes
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)
IT Carbon black, uses
Coke
RL: DEV (Device component use)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)
IT Secondary batteries
(lithium; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)
IT Polymerization
(thermal; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses 7440-32-6, Titanium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11101-13-6 12597-68-1, Stainless steel, uses
RL: DEV (Device component use)
(anode current collector; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use)
(glassy; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)
IT 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl peroxide 2094-98-6, 1,1'-Azobis(cyclohexanecarbonitrile) 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid) 3006-86-8, 1,1-Bis(tert-

butylperoxy)cyclohexane 15667-10-4, 1,1-Bis(tert-amylperoxy)cyclohexane
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 556-65-0, Lithium thiocyanate 685-91-6, n,n-Diethylacetamide 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide (NiO), uses 1314-62-1, Vanadia, uses 1317-37-9, Iron sulfide (FeS) 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 2923-17-3 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 7784-01-2, Silver chromate 7789-19-7, Copperfluoride (CuF2) 7791-03-9, Lithium perchlorate 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride 11115-78-9, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide 11126-12-8, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide 12031-65-1, Lithium nickel oxide (LiNiO2) 12039-13-3, Titanium sulfide (TiS2) 12057-17-9, Lithium manganese oxide (LiMn2O4) 12057-24-8 , Lithia, uses 12068-85-8, Iron sulfide (FeS2) 12162-79-7, Lithium manganese oxide (LiMnO2) 12162-92-4, Lithium vanadium oxide (LiV2O5) 12190-79-3, Cobalt lithium oxide (CoLiO2) 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide 12789-09-2, Copper vanadium oxide 12795-09-4, Copper telluride 13453-75-3 13463-67-7, Titanium oxide, uses 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 20667-12-3, Silver oxide (Ag2O) 21324-40-3, Lithium hexafluorophosphate 22205-45-4, Copper sulfide (Cu2S) 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride 51311-17-2, Carbon fluoride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide 90076-65-6 115028-88-1 131344-56-4, Cobalt lithium nickel oxide 132404-42-3 135751-98-3, Vanadium selenide 162124-03-0, Niobium telluride 181183-66-4, Copper Silver vanadium oxide 188029-35-8, Lithium titanium oxide (Li4-7Ti5O12) 423734-10-5, Cobalt lithium nitride (Co0.1-0.6Li2.4-2.9N) 423734-14-9, Lithium nickel nitride (Li2.4-2.9Ni0.1-0.6N) 527698-30-2, Copper lithium tin oxide (Cu0.92LiSn0.08O2)
RL: DEV (Device component use)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

IT 26426-04-0P, Trimethylolpropane trimethacrylate homopolymer 57592-66-2P, Pentaerythritol tetraacrylate homopolymer 57592-67-3P, Hexanediol diacrylate homopolymer 64401-02-1P, Bisphenol A-ethylene oxide adduct diacrylate 67653-78-5P, Dipentaerythritol hexaacrylate homopolymer 82200-28-0P, Dipentaerythritol

pentaacrylate homopolymer 85887-85-0P, Ethoxylated trimethylolpropane triacrylate homopolymer 103315-68-0P , Di(trimethylolpropane)tetraacrylate homopolymer 117223-60-6P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

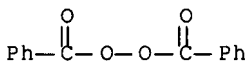
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use)
(glassy; in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

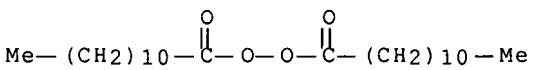
C

IT 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl peroxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



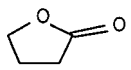
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



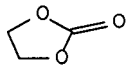
IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 556-65-0, Lithium thiocyanate 1317-37-9, Iron sulfide (FeS) 2923-17-3 7791-03-9, Lithium perchlorate 11113-75-0, Nickel sulfide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 11130-24-8, Vanadium sulfide 12031-65-1, Lithium nickel oxide (LiNiO2) 12039-13-3, Titanium sulfide (TiS2) 12057-17-9, Lithium manganese oxide (LiMn2O4) 12057-24-8, Lithia, uses 12068-85-8, Iron sulfide (FeS2) 12162-79-7, Lithium manganese oxide (LiMnO2) 12162-92-4, Lithium vanadium oxide (LiV2O5) 12190-79-3, Cobalt lithium oxide (CoLiO2) 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese

sulfide 13453-75-3 14024-11-4, Lithium
tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate
14485-20-2, Lithium tetraphenylborate 15955-98-3,
Lithium tetrachlorogallate 18424-17-4, Lithium
hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate
22205-45-4, Copper sulfide (Cu2S) 29935-35-1, Lithium
hexafluoroarsenate 33454-82-9, Lithium triflate
39290-91-0, Niobium sulfide 90076-65-6
115028-88-1 131344-56-4, Cobalt lithium nickel oxide
132404-42-3 188029-35-8, Lithium titanium oxide
(Li4-7Ti5O12) 423734-10-5, Cobalt lithium nitride
(Co0.1-0.6Li2.4-2.9N) 423734-14-9, Lithium nickel nitride
(Li2.4-2.9Ni0.1-0.6N) 527698-30-2, Copper lithium tin oxide
(Cu0.92LiSn0.08O2)
RL: DEV (Device component use)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable electrochem. cells)

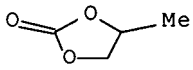
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



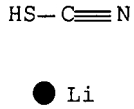
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



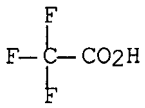
RN 556-65-0 HCAPLUS
CN Thiocyanic acid, lithium salt (1:1) (CA INDEX NAME)



RN 1317-37-9 HCAPLUS
CN Iron sulfide (FeS) (CA INDEX NAME)

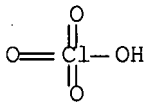
Fe═S

RN 2923-17-3 HCAPLUS
CN Acetic acid, 2,2,2-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



● Li

RN 11113-75-0 HCAPLUS
CN Nickel sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ni	x	7440-02-0

RN 11115-78-9 HCAPLUS
CN Copper sulfide (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE
RN 11126-12-8 HCAPLUS
CN Iron sulfide (CA INDEX NAME)

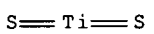
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11130-24-8 HCAPLUS
CN Vanadium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
V	x	7440-62-2

RN 12031-65-1 HCAPLUS
CN Lithium nickel oxide (LiNiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

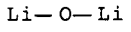
RN 12039-13-3 HCAPLUS
CN Titanium sulfide (TiS2) (CA INDEX NAME)



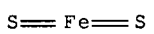
RN 12057-17-9 HCAPLUS
CN Lithium manganese oxide (LiMn2O4) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

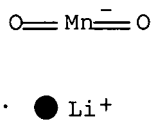
RN 12057-24-8 HCAPLUS
CN Lithium oxide (Li2O) (CA INDEX NAME)



RN 12068-85-8 HCAPLUS
CN Iron sulfide (FeS2) (CA INDEX NAME)



RN 12162-79-7 HCAPLUS
CN Manganate (MnO21-), lithium (9CI) (CA INDEX NAME)



RN 12162-92-4 HCAPLUS
CN Lithium vanadium oxide (LiV2O5) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	5	17778-80-2

V	2	7440-62-2
Li	1	7439-93-2

RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 12612-50-9 HCAPLUS
CN Molybdenum sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mo	x	7439-98-7

RN 12623-97-1 HCAPLUS
CN Chromium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Cr	x	7440-47-3

RN 12653-56-4 HCAPLUS
CN Cobalt sulfide (CA INDEX NAME)

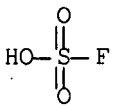
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12673-92-6 HCAPLUS
CN Titanium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Ti	x	7440-32-6

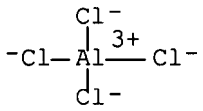
RN 12687-82-0 HCAPLUS
CN Manganese sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Mn	x	7439-96-5

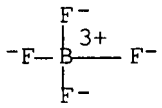
RN 13453-75-3 HCAPLUS
CN Fluorosulfuric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



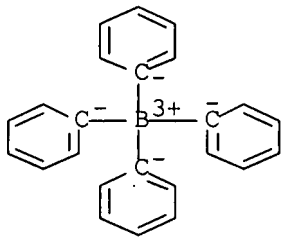
RN 14024-11-4 HCAPLUS
CN Aluminate(1-), tetrachloro-, lithium (1:1), (T-4)- (CA INDEX NAME)



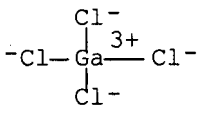
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)

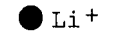


RN 14485-20-2 HCAPLUS
CN Borate(1-), tetraphenyl-, lithium (1:1) (CA INDEX NAME)

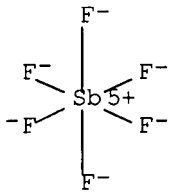


RN 15955-98-3 HCAPLUS
CN Gallate(1-), tetrachloro-, lithium, (T-4)- (9CI) (CA INDEX NAME)

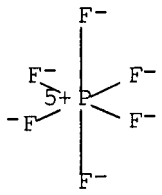




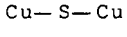
RN 18424-17-4 HCAPLUS
CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)



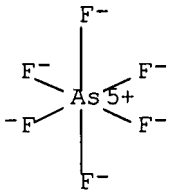
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

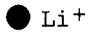


RN 22205-45-4 HCAPLUS
CN Copper sulfide (Cu2S) (CA INDEX NAME)

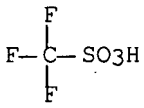


RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)





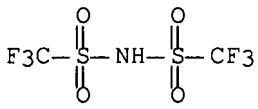
RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



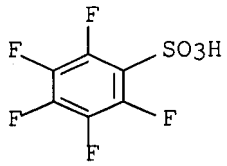
RN 39290-91-0 HCAPLUS
CN Niobium sulfide (CA INDEX NAME)

Component	Ratio	Component Registry Number
S	x	7704-34-9
Nb	x	7440-03-1

RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



RN 115028-88-1 HCAPLUS
CN Benzenesulfonic acid, 2,3,4,5,6-pentafluoro-, lithium salt (1:1) (CA INDEX NAME)

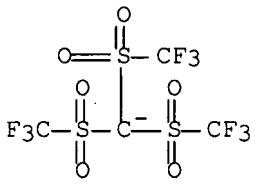


● Li

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Ni	x	7440-02-0
Li	x	7439-93-2

RN 132404-42-3 HCAPLUS
CN Methane, [tris[(trifluoromethyl)sulfonyl]methyl]-, ion(1-), lithium (1:1) (CA INDEX NAME)



● Li^+

RN 188029-35-8 HCAPLUS
CN Lithium titanium oxide (Li4-7Ti5O12) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	12	17778-80-2
Ti	5	7440-32-6
Li	4 - 7	7439-93-2

RN 423734-10-5 HCAPLUS
CN Cobalt lithium nitride (Co0.1-0.6Li2.4-2.9N) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	1	17778-88-0
Co	0.1 - 0.6	7440-48-4
Li	2.4 - 2.9	7439-93-2

RN 423734-14-9 HCAPLUS
CN Lithium nickel nitride (Li2.4-2.9Ni0.1-0.6N) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
N	1	17778-88-0
Ni	0.1 - 0.6	7440-02-0
Li	2.4 - 2.9	7439-93-2

RN 527698-30-2 HCAPLUS
CN Copper lithium tin oxide (Cu0.92LiSn0.08O2) (9CI) (CA INDEX NAME)

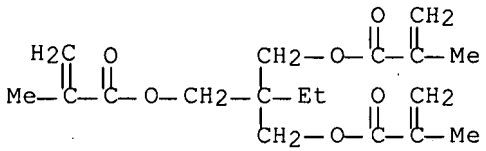
Component	Ratio	Component Registry Number
O	2	17778-80-2
Cu	0.92	7440-50-8
Sn	0.08	7440-31-5
Li	1	7439-93-2

IT **26426-04-0P**, Trimethylolpropane **trimethacrylate** homopolymer **57592-66-2P**, Pentaerythritol **tetraacrylate** homopolymer **57592-67-3P**, Hexanediol **diacrylate** homopolymer **64401-02-1P**, Bisphenol A-ethylene oxide adduct **diacrylate** **67653-78-5P**, Dipentaerythritol **hexaacrylate** homopolymer **82200-28-0P**, Dipentaerythritol **pentaacrylate** homopolymer **85887-85-0P**, Ethoxylated trimethylolpropane **triacrylate** homopolymer **103315-68-0P**, Di(trimethylolpropane)**tetraacrylate** homopolymer **117223-60-6P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation)
(in-situ thermal polymerization method for making gel polymer lithium ion rechargeable **electrochem. cells**)

RN 26426-04-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[(2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 3290-92-4
CMF C18 H26 O6

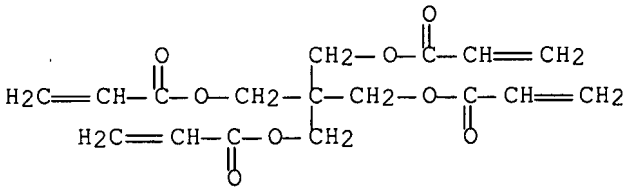


RN 57592-66-2 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2,2-bis[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 4986-89-4

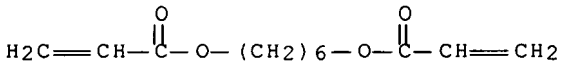
CMF C17 H20 O8



RN 57592-67-3 HCAPLUS
CN 2-Propenoic acid, 1,1'-(1,6-hexanediyl) ester, homopolymer (CA INDEX NAME)

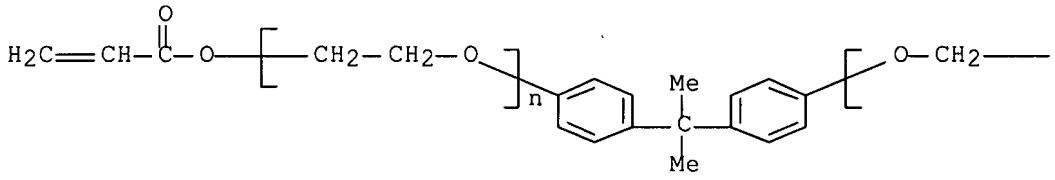
CM 1

CRN 13048-33-4
CMF C12 H18 O4

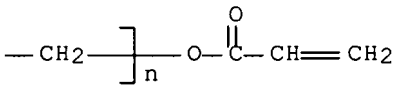


RN 64401-02-1 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α,α'-[(1-methylethylidene)di-4,1-phenylene]bis[ω-[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)

PAGE 1-A



PAGE 1-B

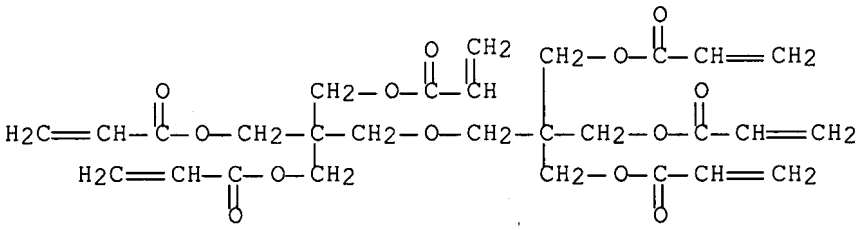


RN 67653-78-5 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-[[3-[(1-oxo-2-propen-1-yl)oxy]-2,2-bis[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 29570-58-9

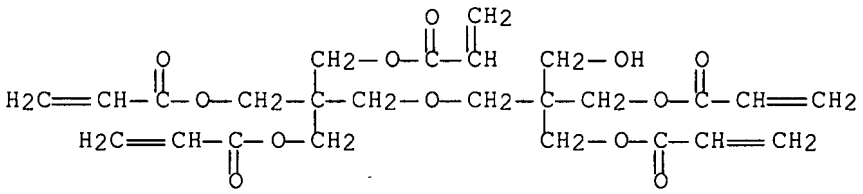
CMF C28 H34 O13



RN 82200-28-0 HCAPLUS
CN 2-Propenoic acid, 1,1'-[-[[3-hydroxy-2,2-bis[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 60506-81-2
CMF C25 H32 O12

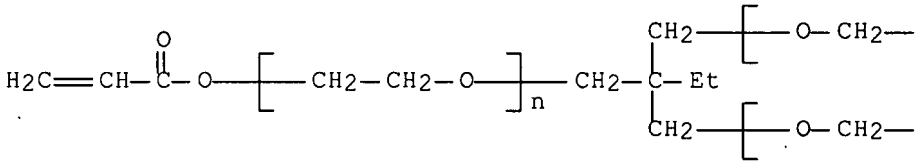


RN 85887-85-0 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-[(1-oxo-2-propenyl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1), homopolymer (CA INDEX NAME)

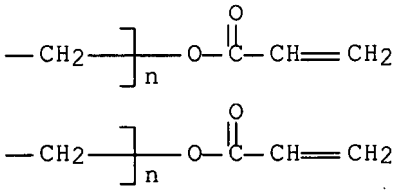
CM 1

CRN 28961-43-5
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C15 H20 O6
CCI PMS

PAGE 1-A



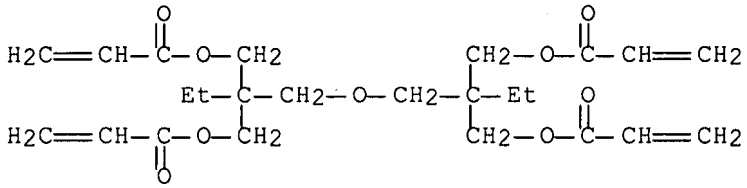
PAGE 1-B



RN 103315-68-0 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-[[2,2-bis[[(1-oxo-2-propen-1-yl)oxy]methyl]butoxy]methyl]-2-ethyl-1,3-propanediyl] ester, homopolymer (CA INDEX NAME)

CM 1

CRN 94108-97-1
CMF C24 H34 O9

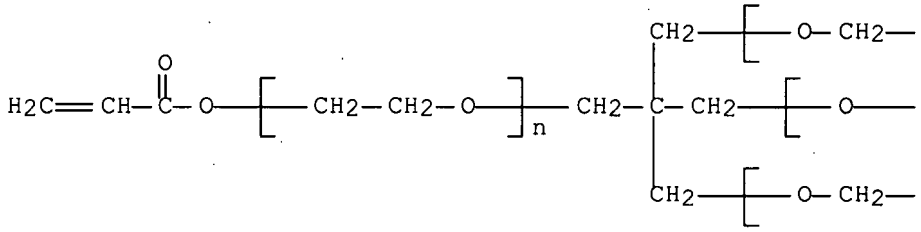


RN 117223-60-6 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2,2-bis(hydroxymethyl)-1,3-propanediol (4:1), homopolymer (CA INDEX NAME)

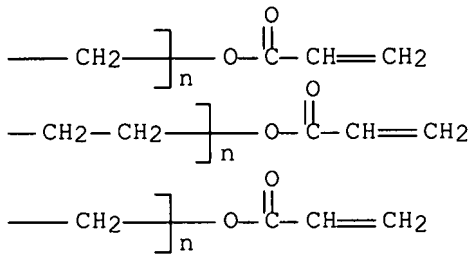
CM 1

CRN 51728-26-8
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C17 H20 O8
CCI PMS

PAGE 1-A



PAGE 1-B



L135 ANSWER 14 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:262136 HCAPLUS Full-text
DN 138:274121
TI Device using **polymer** gel **electrolyte**
IN Nakamura, Seiji; Tabuchi, Masato; Sakai, Takaaki; Miura, Katsuhito; Murakami, Satoshi
PA Daiso Co., Ltd., Japan
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003028144	A1	20030403	WO 2002-JP9699	20020920 <--
	W: DE, US				
	JP 2003187637	A	20030704	JP 2002-267975	20020913 <--
	US 2004241551	A1	20041202	US 2004-490026	20040319 <--
PRAI	JP 2001-288844	A	20010921 <--		
	WO 2002-JP9699	W	20020920 <--		

AB The device, especially a secondary lithium **battery** contains an gel **electrolyte** obtained by reacting a pre-gel composition, having viscosity at 25° ≤100 mPa and comprising (A) a polyether **copolymer** which has a weight average mol. weight of 50,000-1,000,000 and is prepared by **polymerizing** ≥1 oxirane compound having a main chain derived from ethylene oxide and/or propylene oxide and a side chain of oligo-oxyethylene, and an optional oxirane compound having a reactive functional group, (B) a crosslinker, (C) an **electrolyte** salt compound, (D) an aprotic organic **solvent**, and (E) an initiator; where the device manufactured by injecting the pre-gel composition into the device having a cathode facing an anode, and gelatinizing the composition by crosslinking reaction, comprises 0.5-10 % gel held between the cathode and the anode.

IC ICM **H01M0010-40**
ICS **H01M0014-00**; H01G0009-00; H01B0001-06; H01L0031-04; G01N0027-406; C08G0065-04
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery** polyether **polymer** gel **electrolyte** compn
IT **Battery electrolytes**
(compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
IT Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)

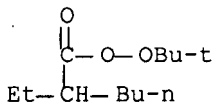
IT **Secondary batteries**
(lithium; compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anode; compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
IT **12190-79-3**, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
IT **3006-82-4**, Perbutyl O 3006-93-7, N,N'-m-Phenylene bismaleimide **3290-92-4**, **Trimethylolpropanetrimethacrylate**
RL: CAT (Catalyst use); USES (Uses)
(compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
IT **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate 616-38-6, Dimethyl carbonate **14283-07-9**, Lithium tetrafluoroborate **90076-65-6** 115383-11-4, Allyl glycidyl ether-ethylene oxide-2-(2-methoxy ethoxy)ethyl glycidyl ether **copolymer 483965-65-7**
RL: DEV (Device component use); USES (Uses)
(compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(anode; compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

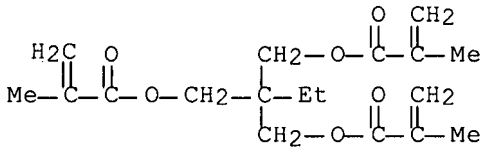
IT **12190-79-3**, Cobalt lithium oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(cathode; compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

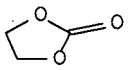
IT **3006-82-4**, Perbutyl O **3290-92-4**, **Trimethylolpropanetrimethacrylate**
RL: CAT (Catalyst use); USES (Uses)
(compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
RN 3006-82-4 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 1,1-dimethylethyl ester (CA INDEX NAME)



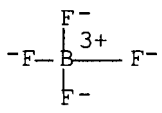
RN 3290-92-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[(2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



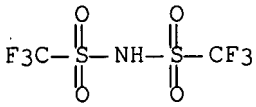
IT **96-49-1**, Ethylene carbonate **14283-07-9**, Lithium tetrafluoroborate **90076-65-6 483965-65-7**
RL: DEV (Device component use); USES (Uses)
(compns. of crosslinked ether **copolymers** for **electrolytes** in secondary lithium **batteries**)
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



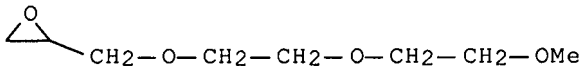
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



RN 483965-65-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with [[2-(2-methoxyethoxy)ethoxy]methyl]oxirane and oxirane (9CI) (CA INDEX NAME)

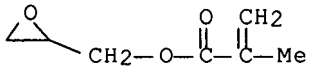
CM 1

CRN 71712-93-1
CMF C8 H16 O4



CM 2

CRN 106-91-2
CMF C7 H10 O3



CM 3

CRN 75-21-8
CMF C2 H4 O

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Daiso Co Ltd	1997			JP 09-539740 A	
Daiso Co Ltd	1997			US 6239204 B	HCAPLUS
Daiso Co Ltd	1997			EP 897941 A1	HCAPLUS
Daiso Co Ltd	1997			WO 9742251 A1	HCAPLUS

Daiso Co Ltd	1998		JP 10-510574 A	
Daiso Co Ltd	1998		JP 10-526483 A	
Daiso Co Ltd	1998		US 6162563 A	HCAPLUS
Daiso Co Ltd	1998		US 6180287 B	HCAPLUS
Daiso Co Ltd	1998		EP 856538 A1	HCAPLUS
Daiso Co Ltd	1998		EP 885913 A1	HCAPLUS
Daiso Co Ltd	1998		WO 9807772 A1	HCAPLUS
Daiso Co Ltd	1998		WO 9825990 A1	HCAPLUS
Daiso Co Ltd	2000		JP 2000306425 A	HCAPLUS
Sanyo Electric Co Ltd	1999		JP 11-214038 A	HCAPLUS
Sanyo Electric Co Ltd	1999		JP 11-283672 A	HCAPLUS
Sanyo Electric Co Ltd	1999		JP 11-283673 A	HCAPLUS

L135 ANSWER 15 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2003:5305 HCAPLUS Full-text
DN 138:42077
TI Preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mechanical properties for lithium **battery**
IN **Lee, Kyoung-hee**; Kim, Ki-ho
PA **Samsung SDI Co., Ltd., S. Korea**
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003003368	A1	20030102	US 2002-136431	20020502 <--
	US 6933080	B2	20050823		
	KR 2002084614	A	20021109	KR 2001-24041	20010503 <--
	JP 2003017129	A	20030117	JP 2002-130108	20020501 <--
	CN 1388172	A	20030101	CN 2002-121519	20020503 <--
PRAI	KR 2001-24041	A	20010503 <--		

AB A **polymer electrolyte** is formed by curing a composition prepared by mixing a **polymer** of compds. of polyethylene glycol di(meth)**acrylates** and/or multifunctional ethylene oxides; one selected from a vinylacetate monomer, a (meth)**acrylate** monomer, and a mixture of a vinyl acetate monomer and a (meth)**acrylate** monomer; and an **electrolytic** solution containing a lithium salt and an organic **solvent**.
IC ICM **H01M0010-40**
ICS **H01M0010-04**
INCL 429303000; 429317000; 429307000; 429254000; 429144000; 029623100; 429324000; 429094000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery polymer electrolyte** prepn
IT **Secondary batteries**
(lithium; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)
IT **Battery electrolytes**
Casting of **polymeric** materials
Crosslinking catalysts
Polymer electrolytes
Secondary battery separators
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium

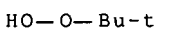
battery)
IT Amines, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)
IT **Fluoropolymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)
IT **Fluoropolymers**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate for casting; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for
lithium **battery**)
IT **75-91-2**, tert-Butyl hydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Dibenzoyl peroxide, processes **105-74-8**, Dilauroyl peroxide **110-05-4**, Di-tert-butyl peroxide 123-23-9, Succinic acid peroxide 762-12-9, Didecanoyl peroxide 927-07-1, tert-Butylperoxy pivalate **2167-23-9**, 2,2-Di-(tert-butylperoxy)butane **3025-88-5**, 2,5-Dihydroperoxy-2,5-dimethylhexane 4511-39-1, tert-Amylperoxy benzoate 15667-10-4, 1,1-Di-(tert-amylperoxy)cyclohexane **16066-38-9**, Di(n-propyl)peroxydicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxydicarbonate **19910-65-7**, Di(sec-butyl)peroxydicarbonate **26748-47-0**, α-Cumyl peroxy neodecanoate **55794-20-2** **95732-35-7**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(curing initiator; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for
lithium **battery**)
IT 102-71-6, Triethanolamine, uses 102-82-9, Tributylamine 103-83-3, n-Benzyldimethylamine 121-44-8, Triethyl amine, uses
RL: CAT (Catalyst use); USES (Uses)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)
IT **96-47-9**, 2-Methyltetrahydrofuran **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate 107-31-3, Methyl formate **108-32-7**, Propylene carbonate 109-94-4, Ethyl formate **109-99-9**, Thf, uses 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate **7791-03-9**, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **33454-82-9**, Lithium triflate 73506-93-1, Diethoxyethane
RL: DEV (Device component use)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)
IT **80-62-6DP**, **Methylmethacrylate**, **polymers** with vinyl acetate and isoerythritol diether esters 108-05-4DP, Vinyl acetate, **polymers** with Me **methacrylate** and isoerythritol diether esters **27015-60-7P**, Ethylene glycol

dimethacrylate-vinyl acetate **copolymer** 60712-37-0DP, esters with **acrylate** and 6-hydroxyhexanoate, **polymers** containing vinyl acetate and Me **methacrylate** 95877-34-2P, Ethylene glycol **dimethacrylate**-methyl **methacrylate** -vinyl acetate **copolymer**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)

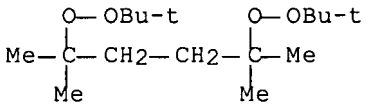
IT 9002-84-0, Teflon
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate for casting; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for
lithium **battery**)

IT **75-91-2**, tert-Butyl hydroperoxide **78-63-7**, 2,5-Dimethyl-2,5-di(tert-butylperoxy)hexane **78-67-1**, Azobisisobutyronitrile **80-15-9**, Cumene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Dibenzoyl peroxide, processes **105-74-8**, Dilauroyl peroxide **110-05-4**, Di-tert-butyl peroxide **2167-23-9**, 2,2-Di-(tert-butylperoxy)butane **3025-88-5**, 2,5-Dihydroperoxy-2,5-dimethylhexane **16066-38-9**, Di(n-propyl)peroxydicarbonate **16111-62-9**, Di(2-ethylhexyl)peroxydicarbonate **19910-65-7**, Di(sec-butyl)peroxydicarbonate **26748-47-0**, α-Cumyl peroxy neodecanoate **55794-20-2** **95732-35-7**
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(curing initiator; preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for
lithium **battery**)

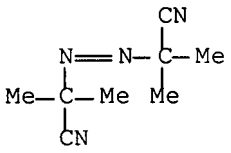
RN 75-91-2 HCAPLUS
CN Hydroperoxide, 1,1-dimethylethyl (CA INDEX NAME)



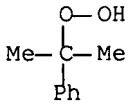
RN 78-63-7 HCAPLUS
CN Peroxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



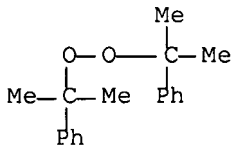
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



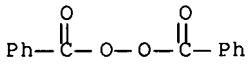
RN 80-15-9 HCAPLUS
CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



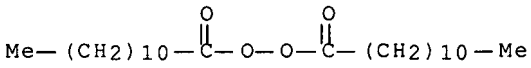
RN 80-43-3 HCAPLUS
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



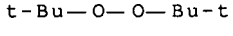
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)

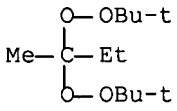


RN 110-05-4 HCAPLUS
CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)

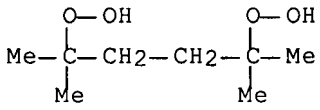


RN 2167-23-9 HCAPLUS

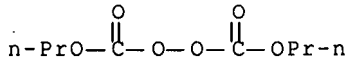
CN Peroxide, 1,1'-(1-methylpropylidene)bis[2-(1,1-dimethylethyl) (CA INDEX NAME)



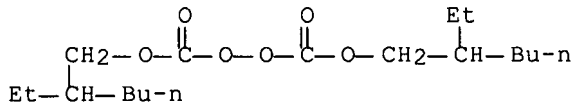
RN 3025-88-5 HCAPLUS
CN Hydroperoxide, 1,1'-(1,1,4,4-tetramethyl-1,4-butanediyl)bis- (CA INDEX NAME)



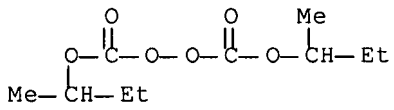
RN 16066-38-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-dipropyl ester (CA INDEX NAME)



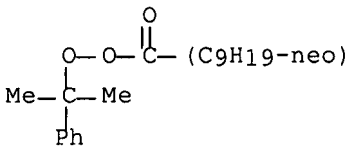
RN 16111-62-9 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(2-ethylhexyl) ester (CA INDEX NAME)



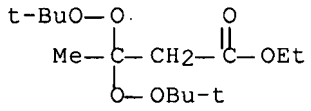
RN 19910-65-7 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylpropyl) ester (CA INDEX NAME)



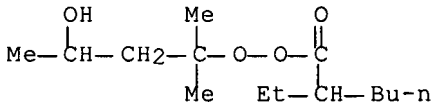
RN 26748-47-0 HCAPLUS
CN Neodecaneperoxoic acid, 1-methyl-1-phenylethyl ester (CA INDEX NAME)



RN 55794-20-2 HCAPLUS
CN Butanoic acid, 3,3-bis[(1,1-dimethylethyl)dioxy]-, ethyl ester (CA INDEX NAME)

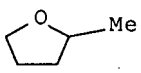


RN 95732-35-7 HCAPLUS
CN Hexaneperoxoic acid, 2-ethyl-, 3-hydroxy-1,1-dimethylbutyl ester (CA INDEX NAME)

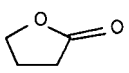


IT **96-47-9**, 2-Methyltetrahydrofuran **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **109-99-9**, Thf, uses **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **33454-82-9**, Lithium triflate
RL: DEV (Device component use)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)

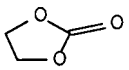
RN 96-47-9 HCAPLUS
CN Furan, tetrahydro-2-methyl- (CA INDEX NAME)



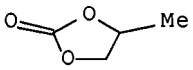
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

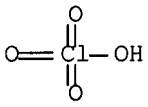


RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

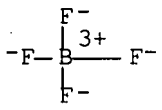


RN 109-99-9 HCAPLUS
CN Furan, tetrahydro- (CA INDEX NAME)

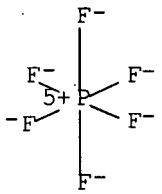
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



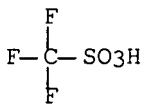
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



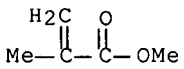
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



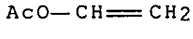
IT **80-62-6DP, Methylmethacrylate, polymers** with vinyl acetate and isoerythritol diether esters **27015-60-7P**, Ethylene glycol **dimethacrylate**-vinyl acetate **copolymer** **95877-34-2P**, Ethylene glycol **dimethacrylate**-methyl **methacrylate**-vinyl acetate **copolymer**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation)
(preparation of **polymer electrolyte** with good ionic conductivity at room temperature and good mech. properties for lithium **battery**)
RN 80-62-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



RN 27015-60-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, polymer with ethenyl acetate (CA INDEX NAME)

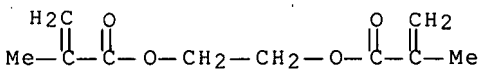
CM 1

CRN 108-05-4
CMF C4 H6 O2



CM 2

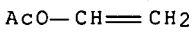
CRN 97-90-5
CMF C10 H14 O4



RN 95877-34-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, polymer with ethenyl acetate and methyl 2-methyl-2-propenoate (CA INDEX NAME)

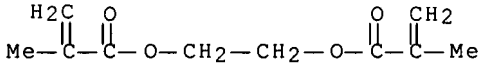
CM 1

CRN 108-05-4
CMF C4 H6 O2



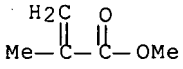
CM 2

CRN 97-90-5
CMF C10 H14 O4



CM 3

CRN 80-62-6
CMF C5 H8 O2



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1988			JP 63-94501	HCAPLUS
Anon	1991			JP 03-195713	HCAPLUS
Anon	1995			DE 4431773 A1	HCAPLUS

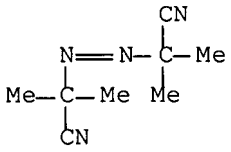
Anon	1998		JP 10-130346	HCAPLUS
Anon	1998		JP 10130346 A	HCAPLUS
Anon	2000		EP 1037294 A2	HCAPLUS
Anon	2002		KR 200277732	
Lee	1989		US 4830939 A	HCAPLUS
Schwab	1988		US 4792504 A	HCAPLUS
Subramaniam	1998		US 5817016 A	
Takahashi	1990		US 4908283 A	HCAPLUS
Yasukawa	1989		US 4798773 A	HCAPLUS

L135 ANSWER 16 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:773880 HCAPLUS Full-text
DN 137:297339
TI Nonaqueous secondary electric **battery**
IN Kato, Shiro; Kinoshita, Hajime; Yata, Shizukuni; Kikuta, Haruo
PA Osaka Gas Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

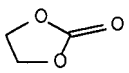
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2002298916	A	20021011	JP 2001-93610	20010328 <--
PRAI JP 2001-93610		20010328 <--		

AB The **battery** is characterized by having a flat shape of ≤12 mm thickness with a volume energy d. of 180 Wh/L and a capacity of ≥30 Wh. The **battery** has a pos. electrode, a neg. electrode, and a gel or solid nonaq. electrolyte containing Li salt. The atmospheric pressure inside the **battery** cell is 8.66 x 104 Pa. The neg. electrode contains a material which is capable of doping and dedoping of Li. The pos. electrode contains manganese oxide. The thickness of the cell container is ≥0.2 mm. The **battery** eliminates the electrolyte leaking.

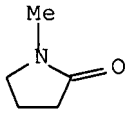
IC ICM **H01M0010-40**
ICS **H01M0002-02**
CC 52-1 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): **76**
ST nonaq secondary elec **battery** lithium salt
IT **Secondary batteries**
(nonaq. secondary elec. **battery** using lithium salt)
IT Carbon black, uses
Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. secondary elec. **battery** using lithium salt)
IT **78-67-1 96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate **872-50-4**, N-Methylpyrrolidone, uses **7440-44-0**, Carbon, uses 7440-50-8, Copper, uses 24937-79-9, Poly-vinylidene fluoride **28158-16-9**, Polyethylene **diacrylate** **210767-01-4**, Lithium manganese oxide (LiMn2O2)
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. secondary elec. **battery** using lithium salt)
IT **78-67-1 96-49-1**, Ethylene carbonate **872-50-4**, N-Methylpyrrolidone, uses **7440-44-0**, Carbon, uses **28158-16-9**, Polyethylene **diacrylate** **210767-01-4**, Lithium manganese oxide (LiMn2O2)
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. secondary elec. **battery** using lithium salt)
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 872-50-4 HCAPLUS
CN 2-Pyrrolidinone, 1-methyl- (CA INDEX NAME)



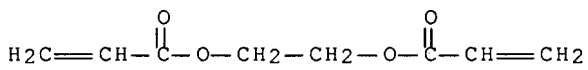
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

RN 28158-16-9 HCAPLUS
CN 2-Propenoic acid, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

CRN 2274-11-5
CMF C8 H10 O4



RN 210767-01-4 HCAPLUS
CN Lithium manganese oxide (LiMn2O2) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	2	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

L135 ANSWER 17 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2002:585696 HCAPLUS Full-text
DN 137:111647
TI Secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and its preparing process
IN Gu, Hui; Huang, Xuejie; Chen, Liquan
PA Inst. of Physics, Chinese Academy of Sciences, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 33 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI CN 1315752	A	20011003	CN 2000-105541	20000330 <--
PRAI CN 2000-105541		20000330 <--		

AB The **battery** consists of an anode with a carbonaceous material as active material, a cathode with LiCoO2, LiNiO2, or LiMn2O4 as active material, colloidal **polymer electrolyte**, **polymer** separator, etc. The colloidal **polymer electrolyte** is prepared from: (1) monomers such as Me **methacrylate**, Bu **methacrylate**, isooctyl **methacrylate**, allyl **methacrylate**, Me **acrylate**, Et **acrylate**, Bu **acrylate**, polyethylene glycol alkyl ether **monoacrylate**, polyethylene glycol **diacrylate**, polyethylene glycol alkyl ether **monomethacrylate**, or polyethylene glycol **dimethacrylate**, (2) **solvent** for the **electrolyte** such as ethylene carbonate, propylene carbonate, di-Me carbonate, di-Et carbonate, ethylmethyl carbonate, or dimethoxyethane, (3) soluble Li salt such as LiN(CF3SO2)3, LiClO4, LiBF4, LiPF6, LiCF3SO3, LiNH(CF3SO2)2, or LiAsF6, (4) initiators such as AIBN, 2,2'- azobis(isoheptyronitrile), 2-tert-Bu oxide, dicumyl peroxide, benzoyl superoxide, dilauroyl peroxide, isopropylbenzene hydroperoxide, diisopropyl pyrocarbonate, dicyclohexyl pyrocarbonate, cyclohexane carboxylate, organometallic compds., triethylboron, combination of benzoyl superoxide and N,N-di-Me aniline, benzoin iso-Bu ether, benzoin iso-Pr ether, benzoin Me ether, benzoin Et ether, benzophenone, acetophenone, diethoxyacetophenone, etc., (5) nanometer SiO2 or Al2O3, amorphous film separator of **polymers** such as polypropylene, polyethylene, poly(vinylidene fluoride), PAN, or fiber- or powder- reinforced polyethylene glycol.

IC ICM **H01M0010-40**
ICS **H01M0010-38**
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST lithium ion **battery** colloidal **polymer electrolyte**
IT Polyoxyalkylenes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(alkyl ether mono(meth)**acrylate**; secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)
IT **Secondary batteries**
(lithium; secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)
IT **Battery anodes**
Battery cathodes

Colloids
Polymer electrolytes
Secondary battery separators
(secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)

IT Carbonaceous materials (technological products)
Fluoropolymers, uses
Polyoxyalkylenes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)

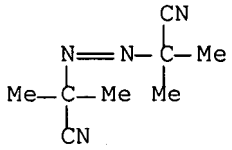
IT **78-67-1**, AIBN **80-15-9**, Isopropylbenzene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Benzoyl superoxide, uses **96-49-1**, Ethylene carbonate 97-94-9, Triethylboron 98-86-2, Acetophenone, uses 105-58-8, Diethyl carbonate **105-74-8**, Dilauroyl peroxide **108-32-7**, Propylene carbonate **110-05-4**, Bis(tert-Butyl) peroxide 110-71-4 119-61-9, Benzophenone, uses 121-69-7, N,N-Dimethyl aniline, uses 574-09-4, Benzoin ethyl ether 616-38-6, Dimethyl carbonate 623-53-0, Ethylmethyl carbonate 1344-28-1, Alumina, uses 3198-23-0, Cyclohexane carboxylate 3524-62-7, Benzoin methyl ether 6175-45-7, Diethoxyacetophenone 6652-28-4, Benzoin isopropyl ether 7631-86-9, Silica, uses **7791-03-9**, Lithium perchlorate 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9011-17-0, Vinylidene fluoride-hexafluoropropene **copolymer** **12031-65-1**, Lithium nickel oxide (LiNiO2) **12057-17-9**, Lithium manganese oxide (LiMn2O4) **12190-79-3**, Cobalt lithium oxide (LiCoO2) **14283-07-9**, Lithium tetrafluoroborate (LiBF4) 15545-95-6 **21324-40-3**, Lithium hexafluorophosphate (LiPF6) 22499-12-3, Benzoin isobutyl ether 24425-00-1, Diisopropyl pyrocarbonate 24937-79-9, Poly(vinylidene fluoride) 25014-41-9, PAN (**polymer**) 25322-68-3, Poly(ethylene glycol) **29935-35-1**, Lithium hexafluoroarsenate (LiAsF6) **33454-82-9** 61114-49-6, Dicyclohexyl pyrocarbonate **90076-65-6**
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)

IT **80-62-6**, Methyl **methacrylate** **96-05-9**, Allyl **methacrylate** **96-33-3**, Methyl **acrylate** **97-63-2**, Ethyl **methacrylate** **97-86-9**, IsoButyl **methacrylate** **97-88-1**, Butyl **methacrylate** **140-88-5**, Ethyl **acrylate** **141-32-2**, Butyl **acrylate** **2210-28-8**, Propyl **methacrylate** 25322-68-3D, Polyethylene glycol, alkyl ether mono(meth)**acrylate** **25721-76-0**, Polyethylene glycol **dimethacrylate** **28158-16-9**, Poly(ethylene glycol **diacrylate**) **28675-80-1**, Isooctyl **methacrylate**
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)

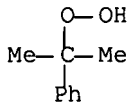
IT **78-67-1**, AIBN **80-15-9**, Isopropylbenzene hydroperoxide **80-43-3**, Dicumyl peroxide **94-36-0**, Benzoyl superoxide, uses **96-49-1**, Ethylene carbonate **105-74-8**, Dilauroyl peroxide **108-32-7**, Propylene carbonate **110-05-4**, Bis(tert-Butyl) peroxide **7791-03-9**, Lithium perchlorate **12031-65-1**, Lithium nickel oxide (LiNiO2) **12057-17-9**,

Lithium manganese oxide (LiMn2O4) **12190-79-3**, Cobalt lithium oxide (LiCoO2) **14283-07-9**, Lithium tetrafluoroborate (LiBF4) **21324-40-3**, Lithium hexafluorophosphate (LiPF6) **29935-35-1**, Lithium hexafluoroarsenate (LiAsF6) **33454-82-9** **90076-65-6**
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)

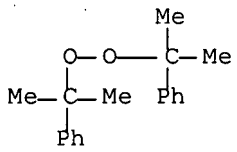
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



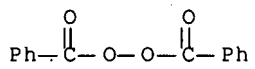
RN 80-15-9 HCAPLUS
CN Hydroperoxide, 1-methyl-1-phenylethyl (CA INDEX NAME)



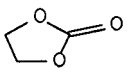
RN 80-43-3 HCAPLUS
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



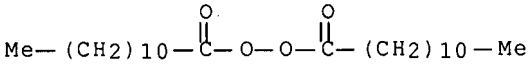
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



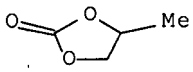
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



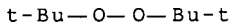
RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



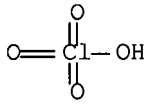
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 110-05-4 HCAPLUS
CN Peroxide, bis(1,1-dimethylethyl) (CA INDEX NAME)



RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



RN 12031-65-1 HCAPLUS
CN Lithium nickel oxide (LiNiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

RN 12057-17-9 HCAPLUS
CN Lithium manganese oxide (LiMn2O4) (CA INDEX NAME)

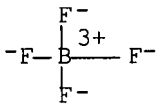
Component	Ratio	Component Registry Number

O	4	17778-80-2
Mn	2	7439-96-5
Li	1	7439-93-2

RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

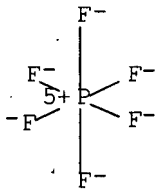
Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



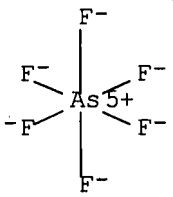
● Li+

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)

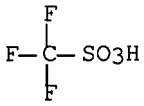


● Li+

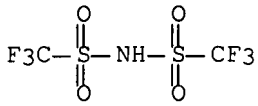
RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



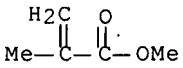
RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



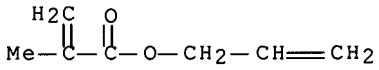
RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



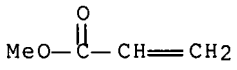
IT **80-62-6**, Methyl **methacrylate** **96-05-9**, Allyl **methacrylate** **96-33-3**, Methyl **acrylate** **97-63-2**, Ethyl **methacrylate** **97-86-9**, IsoButyl **methacrylate** **97-88-1**, Butyl **methacrylate** **140-88-5**, Ethyl **acrylate** **141-32-2**, Butyl **acrylate** **2210-28-8**, Propyl **methacrylate** **25721-76-0**, Polyethylene glycol **dimethacrylate** **28158-16-9**, Poly(ethylene glycol **diacrylate**) **28675-80-1**, Isooctyl **methacrylate**
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(secondary Li ion **battery** using colloidal **polymer** as **electrolyte** and preparing process)
RN 80-62-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, methyl ester (CA INDEX NAME)



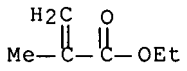
RN 96-05-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-propen-1-yl ester (CA INDEX NAME)



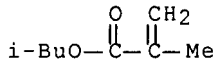
RN 96-33-3 HCAPLUS
CN 2-Propenoic acid, methyl ester (CA INDEX NAME)



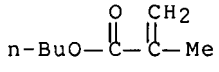
RN 97-63-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, ethyl ester (CA INDEX NAME)



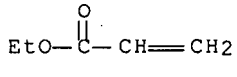
RN 97-86-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-methylpropyl ester (CA INDEX NAME)



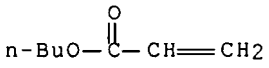
RN 97-88-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, butyl ester (CA INDEX NAME)



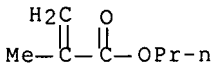
RN 140-88-5 HCAPLUS
CN 2-Propenoic acid, ethyl ester (CA INDEX NAME)



RN 141-32-2 HCAPLUS
CN 2-Propenoic acid, butyl ester (CA INDEX NAME)



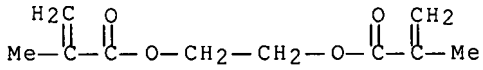
RN 2210-28-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, propyl ester (CA INDEX NAME)



RN 25721-76-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

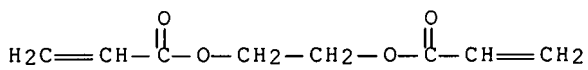
CRN 97-90-5
CMF C10 H14 O4



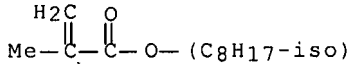
RN 28158-16-9 HCAPLUS
CN 2-Propenoic acid, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

CRN 2274-11-5
CMF C8 H10 O4



RN 28675-80-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, isooctyl ester (CA INDEX NAME)



L135 ANSWER 18 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2002:172424 HCAPLUS Full-text
DN 136:234631
TI Gel electrolyte lithium **battery** with improved safety and reliability
IN Lee, Yong-beom
PA **Samsung SDI Co., Ltd.**, S. Korea
SO U.S. Pat. Appl. Publ., 12 pp.
CODEN: USXXCO
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002028388	A1	20020307	US 2001-938302	20010824 <--
	US 6680147	B2	20040120		
	KR 2002019212	A	20020312	KR 2000-52364	20000905 <--
	KR 2002019213	A	20020312	KR 2000-52365	20000905 <--
	CN 1341977	A	20020327	CN 2001-123114	20010713 <--
	JP 2002151150	A	20020524	JP 2001-269134	20010905 <--
PRAI	KR 2000-52364	A	20000905 <--		
	KR 2000-52365	A	20000905 <--		

AB A lithium **battery** which includes an electrode assembly having a cathode, an anode and a separator interposed between the cathode and the anode, a gel electrolyte prepared by curing a composition consisting of a polysiloxane compound or a polysiloxane-polyoxyalkylene compound, a polyethylene glycol derivative, and an organic **solvent** containing a lithium salt. The lithium **battery** has improved reliability and safety since a swelling phenomenon due to an electrolytic solution is effectively suppressed and leakage of the electrolytic solution is prevented.

IC ICM **H01M0010-40**
INCL 429303000
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery** gel electrolyte improved safety reliability; safety improvement lithium **battery** gel electrolyte
IT Polysiloxanes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**acrylic**; gel electrolyte lithium **battery** with improved safety and reliability)
IT Polyoxyalkylenes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(derivative; gel electrolyte lithium **battery** with improved safety and reliability)
IT **Battery electrolytes**
Polymer electrolytes
Safety
(gel **electrolyte** lithium **battery** with improved safety and reliability)
IT Polysiloxanes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)
IT **Fluoropolymers**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(gel **electrolyte** lithium **battery** with improved safety and reliability)

IT **Secondary batteries**
(lithium; gel electrolyte lithium **battery** with improved safety and reliability)

IT Carbon fibers, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(meso-; gel electrolyte lithium **battery** with improved safety and reliability)

IT **Polymerization**
(**photopolymn.**, or electron-beam; gel **electrolyte** lithium **battery** with improved safety and reliability)

IT Electron beams
UV radiation
(**polymerization** induced by; gel **electrolyte** lithium **battery** with improved safety and reliability)

IT Polysiloxanes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(polyoxyalkylene-; gel electrolyte lithium **battery** with improved safety and reliability)

IT Polyoxyalkylenes, uses
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(polysiloxane-; gel electrolyte lithium **battery** with improved safety and reliability)

IT **Polymerization**
(thermal; gel **electrolyte** lithium **battery** with improved safety and reliability)

IT **7440-44-0**, Super p, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(activated; gel electrolyte lithium **battery** with improved safety and reliability)

IT 25322-68-3D, Polyethylene glycol, derivative **25736-86-1**, Polyethylene glycol **monomethacrylate** **25852-47-5**, Polyethylene glycol **dimethacrylate** **26403-58-7**, Polyethylene glycol **monoacrylate** **26570-48-9**, Polyethylene glycol **diacrylate**
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)

IT **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate 105-58-8, Diethyl carbonate **108-32-7**, Propylene carbonate 112-49-2, Triglyme 143-24-8, Tetraglyme 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 872-36-6, Vinylene carbonate 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses **7791-03-9**, Lithium perchlorate 9002-88-4, Polyethylene **12190-79-3**, Cobalt lithium oxide colio2 **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)

IT **28961-43-5D**, ethoxylated
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)

IT **402934-96-7P**, α-[Dimethyl(3-methoxypropyl)silyl]-ω-[[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]silyl]oxy]poly[oxy(dimethylsilylene)]-polyethylene glycol **dimethacrylate**-polyethylene glycol **monomethacrylate**-ethoxylated trimethylolpropane **triacrylate copolymer 402934-98-9P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(gel **electrolyte** lithium **battery** with improved safety and reliability)

IT 24937-79-9, Pvdf
RL: MOA (Modifier or additive use); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)

IT **78-67-1**, Azobisisobutyronitrile **94-36-0**, Benzoyl peroxide, processes **105-74-8**, Lauroyl peroxide 110-22-5, Acetyl peroxide 119-61-9, Benzophenone, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; gel **electrolyte** lithium **battery** with improved safety and reliability)

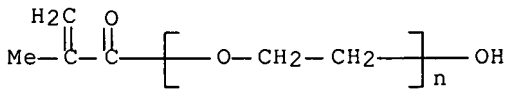
IT **7440-44-0**, Super p, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(activated; gel electrolyte lithium **battery** with improved safety and reliability)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

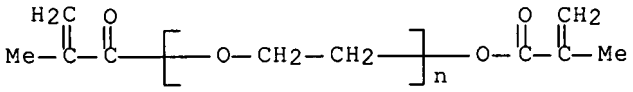
C

IT **25736-86-1**, Polyethylene glycol **monomethacrylate**
25852-47-5, Polyethylene glycol **dimethacrylate**
26403-58-7, Polyethylene glycol **monoacrylate**
26570-48-9, Polyethylene glycol **diacrylate**
RL: CPS (Chemical process); DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)

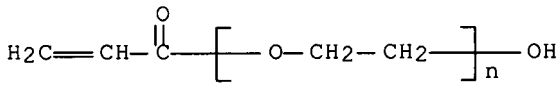
RN 25736-86-1 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-hydroxy- (CA INDEX NAME)



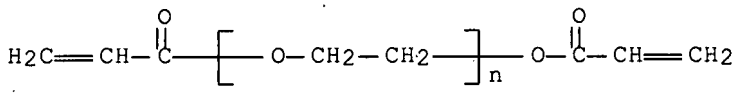
RN 25852-47-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



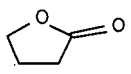
RN 26403-58-7 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propen-1-yl)-ω-hydroxy- (CA INDEX NAME)



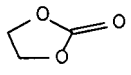
RN 26570-48-9 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propen-1-yl)-ω-[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



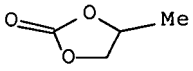
IT **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **7791-03-9**, Lithium perchlorate **12190-79-3**, Cobalt lithium oxide colio2 **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **29935-35-1**, Lithium hexafluoroarsenate **33454-82-9**, Lithium triflate **90076-65-6**
RL: DEV (Device component use); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



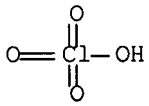
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



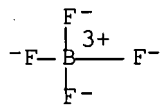
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



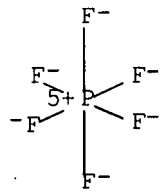
RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

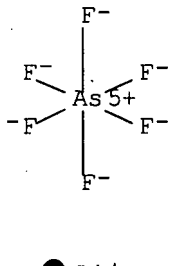
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



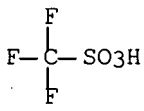
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



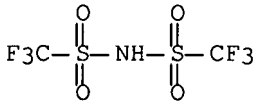
RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)

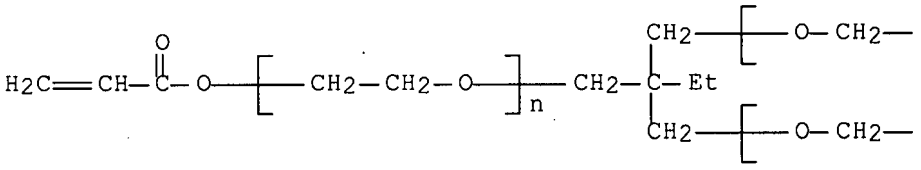


RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

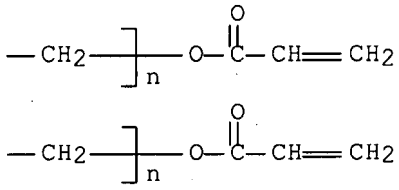


IT **28961-43-5D**, ethoxylated
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(gel electrolyte lithium **battery** with improved safety and reliability)
RN 28961-43-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-[(1-oxo-2-propen-1-yl)oxy]-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



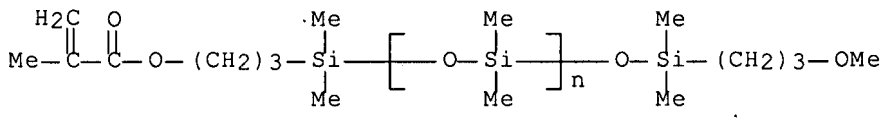
IT **402934-96-7P**, α-[Dimethyl(3-methoxypropyl)silyl]-ω-[[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propoxy]silyl]oxy]poly[oxy(dimethylsilylene)]-polyethylene glycol **dimethacrylate**-polyethylene glycol **monomethacrylate**-ethoxylated trimethylolpropane **triacrylate copolymer 402934-98-9P**
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(gel **electrolyte** lithium **battery** with improved safety and reliability)

RN 402934-96-7 HCAPLUS

CN Poly[oxy(dimethylsilylene)], α-[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]silyl]-ω-[[(3-methoxypropyl)dimethylsilyl]oxy]-, polymer with α-hydro-ω-[(1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1), α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxypoly(oxy-1,2-ethanediyl) and α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 402934-95-6
CMF (C2 H6 O Si)n C15 H32 O4 Si2
CCI PMS

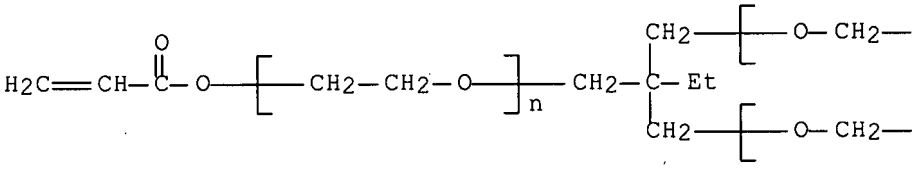


CM 2

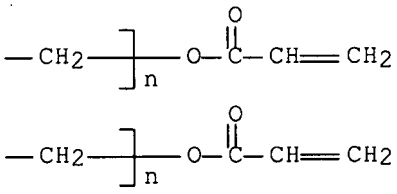
CRN 28961-43-5
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C15 H20 O6

CCI PMS

PAGE 1-A

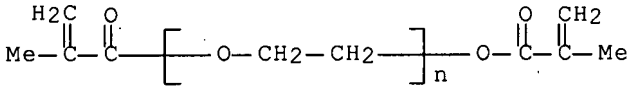


PAGE 1-B



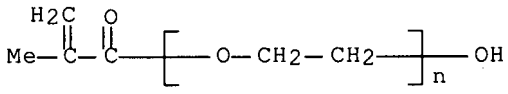
CM 3

CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS



CM 4

CRN 25736-86-1
CMF (C2 H4 O)n C4 H6 O2
CCI PMS



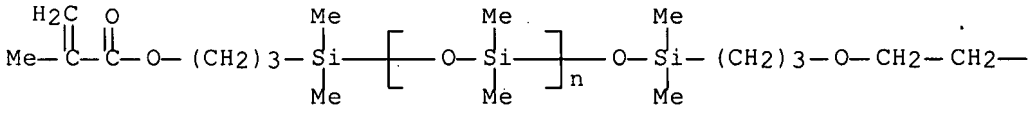
RN 402934-98-9 HCAPLUS
CN Poly[oxy(dimethylsilylene)], α-[dimethyl[3-[(2-methyl-1-oxo-2-propenyl)oxy]propyl]silyl]-ω-[(4,7,10,13,16,19-hexaoxaeicosyldimethylsilyl)oxy]-, polymer with α-hydro-ω-[(1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1), α-(2-methyl-1-oxo-2-

propenyl)-ω-hydroxypoly(oxy-1,2-ethanediyl) and α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

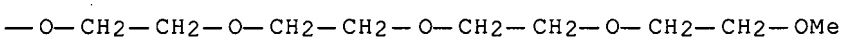
CM 1

CRN 402934-97-8
CMF (C2 H6 O Si)n C25 H52 O9 Si2
CCI PMS

PAGE 1-A



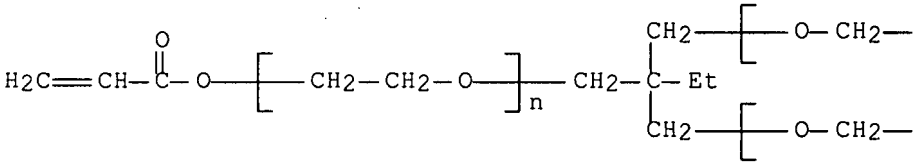
PAGE 1-B



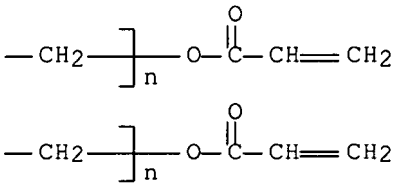
CM 2

CRN 28961-43-5
CMF (C2 H4 O)n (C2 H4 O)n (C2 H4 O)n C15 H20 O6
CCI PMS

PAGE 1-A

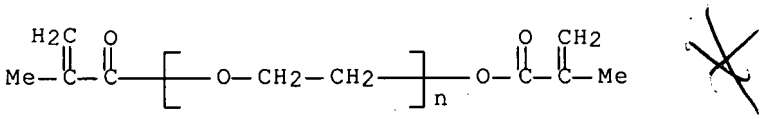


PAGE 1-B



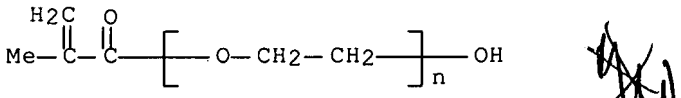
CM 3

CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS

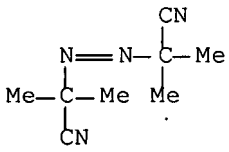


CM 4

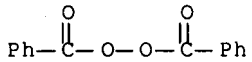
CRN 25736-86-1
CMF (C2 H4 O)n C4 H6 O2
CCI PMS



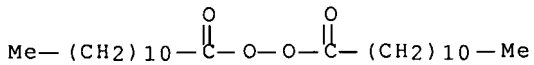
IT **78-67-1**, Azobisisobutyronitrile **94-36-0**, Benzoyl peroxide, processes **105-74-8**, Lauroyl peroxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(**polymerization** initiator; gel **electrolyte** lithium **battery** with improved safety and reliability)
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



RN 105-74-8 HCAPLUS
CN Peroxide, bis(1-oxododecyl) (CA INDEX NAME)



L135 ANSWER 19 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2001:850854 HCAPLUS Full-text
DN 135:374181
TI Method of manufacturing a **polymer** gel **electrolyte battery** or capacitor
IN Sato, Takaya; Shimizu, Tatsuo
PA Nisshinbo Industries, Inc., Japan; Itochu Corporation
SO Eur. Pat. Appl., 24 pp.
CODEN: EPXXDW
DT **Patent**
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1156547	A1	20011121	EP 2001-111816	20010515 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001325991	A	20011122	JP 2000-141687	20000515 <--
	CA 2347408	A1	20011115	CA 2001-2347408	20010511 <--
	US 2002042986	A1	20020418	US 2001-853050	20010511 <--
	US 6793692	B2	20040921		
	SG 100695	A1	20031226	SG 2001-2795	20010511 <--
	CN 1324117	A	20011128	CN 2001-116134	20010515 <--
	TW 512556	B	20021201	TW 2001-90111551	20010515 <--
	EP 1300904	A1	20030409	EP 2003-421	20010515 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI, RO, MK, CY, AL, TR				
	US 2004001302	A1	20040101	US 2003-607956	20030627 <--
PRAI	JP 2000-141687	A	20000515 <--		
	US 2001-853050	A3	20010511 <--		
	EP 2001-111816	A3	20010515 <--		

AB The invention discloses a method for manufacturing an elec. component, in which ions migrate between electrodes and which provides high efficiency. In the method for manufacturing an elec. component, in which ions migrate between electrodes, an ion conductive polymer layer dissolving ions is formed on an electrode material layer of at least one of a pair of electrode structures which comprise an electrode material layer formed on a current collector. The pair of electrode structures are arranged at opposed positions with the current collector facing outward, and this arrangement is accommodated in an accommodation unit, and liquid electrolyte is injected into the accommodation unit.

IC ICM **H01M0010-40**
ICS **H01M0006-18; H01M0006-22**
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
ST **battery polymer** gel **electrolyte** fabrication; capacitor **polymer** gel **electrolyte** fabrication
IT **Polymer electrolytes**
(gel; method of manufacturing **polymer** gel **electrolyte battery** or capacitor)
IT **Battery electrolytes**
Capacitors
Coating materials
Coating process
Conducting polymers
Grinding (machining)

Secondary batteries
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT Carbon black, uses
RL: DEV (Device component use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT Isocyanates
RL: MOA (Modifier or additive use); USES (Uses)
(polymers; method of manufacturing polymer gel electrolyte battery or capacitor)

IT Polyoxyalkylenes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polyol solution containing; method of manufacturing polymer gel electrolyte battery or capacitor)

IT 7440-44-0, Activated carbon, uses
RL: DEV (Device component use); USES (Uses)
(activated, phenol-derived; method of manufacturing polymer gel electrolyte battery or capacitor)

IT 116680-33-2, NC-IM
RL: CAT (Catalyst use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 4419-11-8, 2,2'-Azobis(2,4-dimethyl-valeronitrile) 7429-90-5, Aluminum, uses 7440-50-8, Copper, uses 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 12190-79-3, Cobalt lithium oxide colio2 37337-45-4D, cyanoethylated
RL: DEV (Device component use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 78-67-1, Azobisisobutyronitrile 109-78-4, Ethylene cyanohydrin 3290-92-4, Trimethylolpropane trimethacrylate 9082-00-2, Sannix fa-103 25721-76-0, Polyethylene glycol dimethacrylate 26915-72-0, Methoxypolyethylene glycol monomethacrylate
RL: MOA (Modifier or additive use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 109-99-9, Thf, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of manufacturing polymer gel electrolyte battery or capacitor)

IT 75-21-8, Ethylene oxide, uses 25322-68-3, Peo
RL: MOA (Modifier or additive use); USES (Uses)
(polyol solution containing; method of manufacturing polymer gel electrolyte battery or capacitor)

IT 7440-44-0, Activated carbon, uses
RL: DEV (Device component use); USES (Uses)
(activated, phenol-derived; method of manufacturing polymer gel electrolyte battery or capacitor)

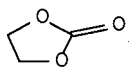
RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

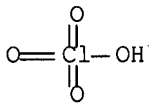
IT 96-49-1, Ethylene carbonate 7791-03-9, Lithium

perchlorate **12190-79-3**, Cobalt lithium oxide colio2
RL: DEV (Device component use); USES (Uses)
(method of manufacturing **polymer** gel **electrolyte** **battery** or capacitor)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



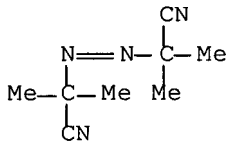
● Li

RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

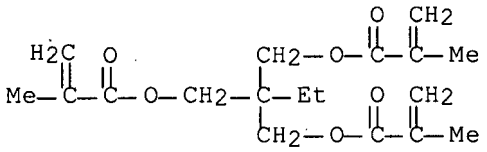
Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT **78-67-1**, Azobisisobutyronitrile **3290-92-4**, Trimethylolpropane **trimethacrylate** **25721-76-0**, Polyethylene glycol **dimethacrylate** **26915-72-0**, Methoxypolyethylene glycol **monomethacrylate**
RL: MOA (Modifier or additive use); USES (Uses)
(method of manufacturing **polymer** gel **electrolyte** **battery** or capacitor)

RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



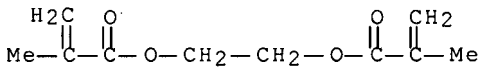
RN 3290-92-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[(2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



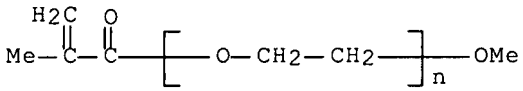
RN 25721-76-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-(1,2-ethanediyl) ester, homopolymer (CA INDEX NAME)

CM 1

CRN 97-90-5
CMF C10 H14 O4



RN 26915-72-0 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-methoxy- (CA INDEX NAME)



IT **109-99-9**, Thf, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(method of manufacturing **polymer** gel **electrolyte** **battery** or capacitor)
RN 109-99-9 HCAPLUS
CN Furan, tetrahydro- (CA INDEX NAME)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon	1997	1997		PATENT ABSTRACTS OF	
Basf Ag	2000			DE 19830993 A	HCAPLUS
Clericuzio, M	1995	82	179	SOLID STATE IONICS	
Koninkl Philips Electro	1999			WO 9949531 A	HCAPLUS
Nisshinbo Ind Inc	1996			JP 08225626 A	HCAPLUS
Osaka, T	1998	74	122	JOURNAL OF POWER SOU	HCAPLUS
Sony Corp	2000			EP 1041658 A	HCAPLUS

Sony Corporation |2000 | | |WO 0013252 A |HCAPLUS

L135 ANSWER 20 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:861966 HCAPLUS Full-text
DN 134:31200
TI **Polymerizable** compound and solid **polymer electrolyte** using the same for **batteries** and electrical double layer capacitors
IN Takeuchi, Masataka; Naijo, Shuichi; Ohkubo, Takashi; Nishioka, Ayako; Nishioka, Masaaki
PA Showa Denko K.K., Japan
SO PCT Int. Appl., 122 pp.
CODEN: PIXXD2
DT **Patent**
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000074158	A1	20001207	WO 1999-JP2861	19990528 <--
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9939566	A1	20001218	AU 1999-39566	19990528 <--
EP 1110260	A1	20010627	EP 1999-922574	19990528 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
PRAI WO 1999-JP2861	A	19990528 <--		

AB The polymer compound of the invention which contains a poly- or oligo-carbonate group and is preferably obtained by utilizing a polymerization reaction using a polymerizable functional group represented by formula CH2:CR2CO2 and/or formula CH2:CR3CO2(OR4)xNHCO2 (R2, R3 = H or C1-6 alkyl; R4 = an unbranched, branched or cyclic divalent group with 1-10 C atoms, which may also contain a heteroatom; and x = 1-10) exhibits good strength even when it is formed into a thin film and has high ion conductivity and excellent workability. By the use of this **polymer** compound, solid **polymer electrolyte**, **battery** and/or elec. double layer capacitor having high-temperature characteristics and large current characteristics are provided.
IC ICM **H01M0006-18**
ICS C08G0064-02; C08G0064-42
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38, 76
ST **battery polymer electrolyte**; capacitor elec double layer **polymer electrolyte**; polycarbonate electrolyte **battery** capacitor
IT **Fluoropolymers**, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(binder; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Capacitors
(double layer; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double

layer capacitors)
IT **Secondary batteries**
(lithium; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT **Polymerization**
(oligomerization; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT **Polymerization**
(**photopolymn.**; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT **Battery electrolytes**
Conducting polymers
Ionic conductivity
Polymer electrolytes
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Alkali metal salts
Carbonaceous materials (technological products)
Phosphonium compounds
Quaternary ammonium compounds, uses
RL: DEV (Device component use); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Polycarbonates, uses
RL: DEV (Device component use); POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Epoxy resins, uses
RL: DEV (Device component use); USES (Uses)
(seal; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
IT **96-49-1DP**, Ethylene carbonate, reaction product with **polymer** containing poly- or oligo-carbonate group **105-58-8DP**, Diethyl carbonate, reaction product with **polymer** containing poly- or oligo-carbonate group **623-53-0DP**, Ethyl methyl carbonate, reaction product with **polymer** containing poly- or oligo-carbonate group

RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(LiPF6-doped; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT **7440-44-0**, Activated carbon, uses
RL: DEV (Device component use); USES (Uses)
(activated; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 24937-79-9, Pvdf
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(binder; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 7631-86-9, Aerosil, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(colloidal; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 1344-28-1, Aluminum oxide, uses 12304-65-3, Hydrotalcite
RL: DEV (Device component use); USES (Uses)
(composite, with **polymer**; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 7429-90-5, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(current collector; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 429-06-1, Tetraethylammonium tetrafluoroborate **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT **226225-64-5P 312324-99-5P 312325-01-2P 312325-02-3P 312325-03-4P**
RL: DEV (Device component use); POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT **312325-09-0P 312325-10-3P**
RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 7782-42-5P, Graphite, uses **12190-79-3P**, Cobalt lithium oxide colio2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 29011-12-9P 37248-85-4P 53566-78-2P **312324-98-4P**

312325-04-5P 312325-05-6P **312325-06-7P 312325-07-8P**
312325-08-9P
RL: POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

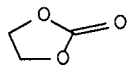
IT **94-36-0**, Benzoyl peroxide, reactions 107-21-1, Ethylene glycol, reactions 111-46-6, Diethylene glycol, reactions 504-63-2, 1,3-Propanediol 51240-95-0, PEROCTA ND 75980-60-8, 2,4,6-Trimethylbenzoyl diphenylphosphine oxide
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 106-75-2P 124-05-0P 17134-17-7P 20215-51-4P 42021-85-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT 25038-59-9, Polyethylene terephthalate, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(substrate; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

IT **96-49-1DP**, Ethylene carbonate, reaction product with **polymer** containing poly- or oligo-carbonate group
RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(LiPF6-doped; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



IT **7440-44-0**, Activated carbon, uses
RL: DEV (Device component use); USES (Uses)
(activated; **polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

RN 7440-44-0 HCAPLUS
CN Carbon (CA INDEX NAME)

C

IT **7439-93-2**, Lithium, uses
RL: DEV (Device component use); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

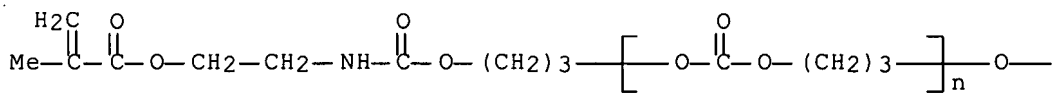
RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

Li

IT **226225-64-5P 312324-99-5P 312325-01-2P**
312325-02-3P 312325-03-4P
RL: DEV (Device component use); POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)

RN 226225-64-5 HCAPLUS
CN Poly(oxycarbonyloxy-1,3-propanediyl), α-[3-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]propyl]-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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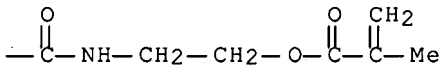
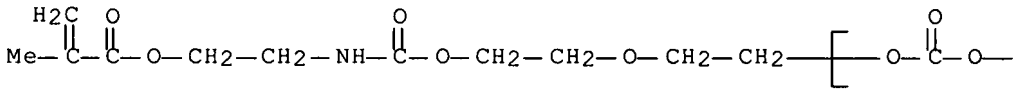


RN 312324-99-5 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyl), α-(13-methyl-7,12-dioxo-3,6,11-trioxa-8-azatetradec-13-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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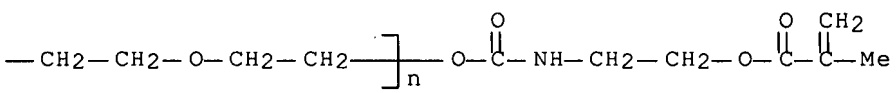
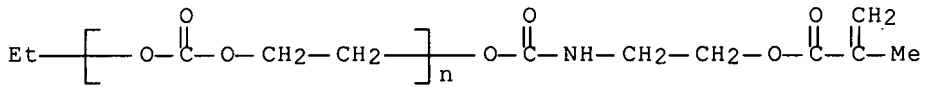


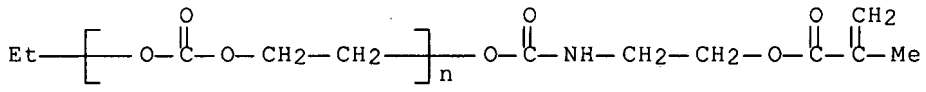
RN 312325-01-2 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyl), α-ethyl-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)



RN 312325-02-3 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyl), α-(13-methyl-7,12-dioxo-3,6,11-trioxa-8-azatetradec-13-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α-ethyl-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

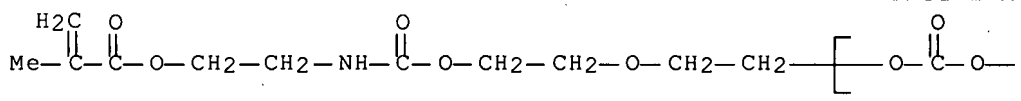
CRN 312325-01-2
CMF (C3 H4 O3)n C9 H15 N O4
CCI PMS



CM 2

CRN 312324-99-5
CMF (C5 H8 O4)n C18 H28 N2 O9
CCI PMS

PAGE 1-A



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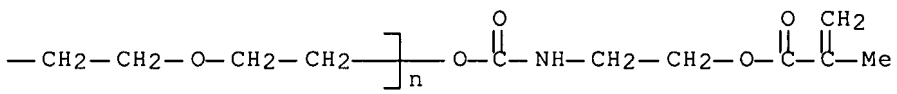


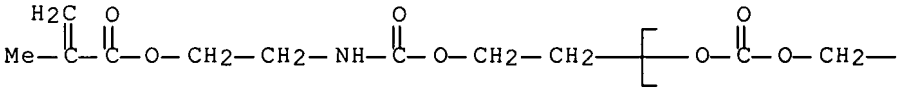
RN 312325-03-4 HCAPLUS
CN Poly(oxycarbonyloxy-1,3-propanediyl), α-[3-[[[[2-[(2-methyl-1-oxo-2-

propenyl)oxy]ethyl]amino]carbonyl]oxy]propyl]-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α-[2-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]ethyl]-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 312324-98-4
CMF (C3 H4 O3)n C16 H24 N2 O8
CCI PMS

PAGE 1-A



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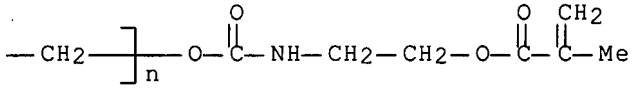
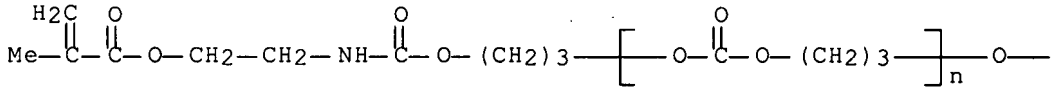


CM 2

CRN 226225-64-5
CMF (C4 H6 O3)n C17 H26 N2 O8
CCI PMS

PAGE 1-A



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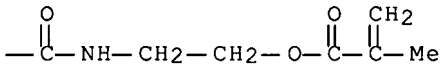


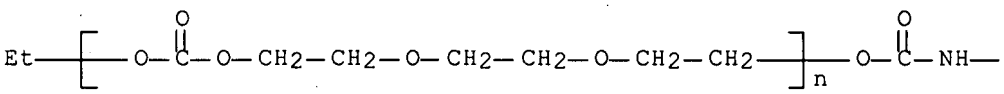
IT **312325-09-0P 312325-10-3P**
RL: DEV (Device component use); POF (Polymer in formulation); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
RN 312325-09-0 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-

1,2-ethanediyl), α-(19-methyl-13,18-dioxo-3,6,9,12,16-pentaoxa-14-azaeicos-19-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α-ethyl-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 312325-08-9
CMF (C7 H12 O5)n C9 H15 N O4
CCI PMS

PAGE 1-A



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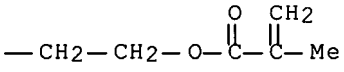
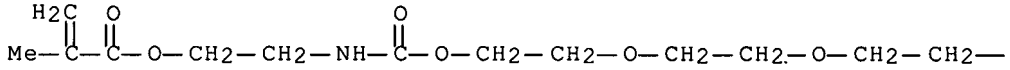


CM 2

CRN 312325-07-8
CMF (C9 H16 O6)n C22 H36 N2 O11
CCI PMS

PAGE 1-A



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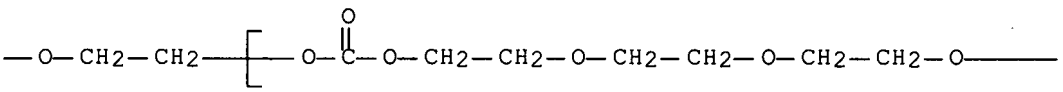
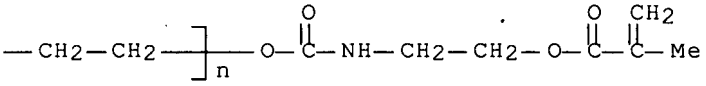


PAGE 1-C

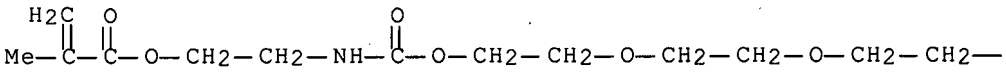


RN 312325-10-3 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl), α-(19-methyl-13,18-dioxo-3,6,9,12,16-pentaoxa-14-azaeicos-19-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]-, polymer with α-(16-methyl-10,15-dioxo-3,6,9,14-tetraoxa-11-azaheptadec-16-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 312325-07-8
CMF (C9 H16 O6)n C22 H36 N2 O11
CCI PMS

PAGE 1-A



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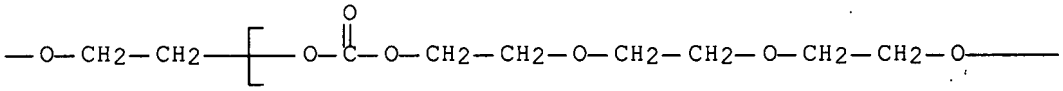

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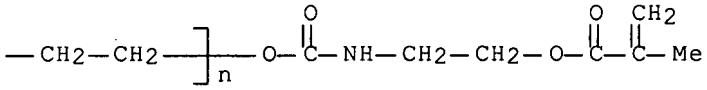
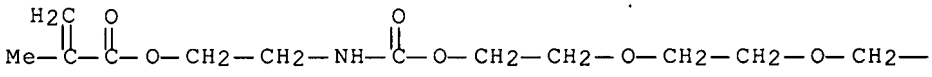


CM 2

CRN 312325-06-7
CMF (C7 H12 O5)n C20 H32 N2 O10
CCI PMS

PAGE 1-A



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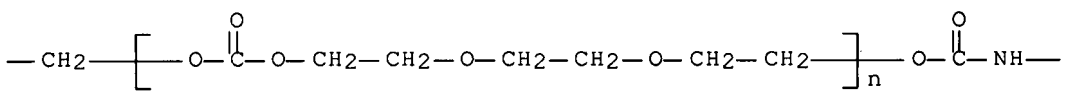

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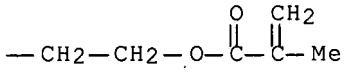
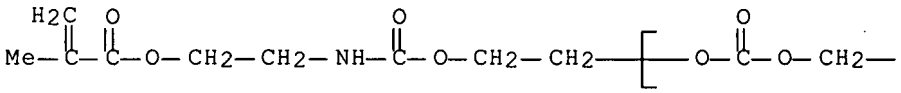


IT **12190-79-3P**, Cobalt lithium oxide colio2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
RN 12190-79-3 HCAPLUS
CN Cobalt lithium oxide (CoLiO2) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT **312324-98-4P 312325-06-7P 312325-07-8P 312325-08-9P**
RL: POF (Polymer in formulation); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(**polymerizable** compound and solid **polymer electrolyte** using same for **batteries** and elec. double layer capacitors)
RN 312324-98-4 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyl), α-[2-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]ethyl]-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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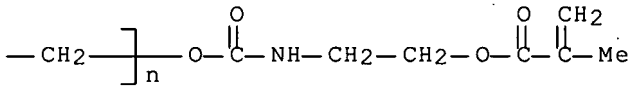
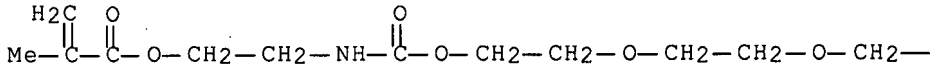
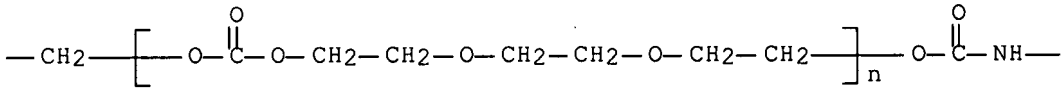


RN 312325-06-7 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl), α-(16-methyl-10,15-dioxo-3,6,9,14-tetraoxa-11-azaheptadec-16-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



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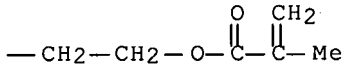
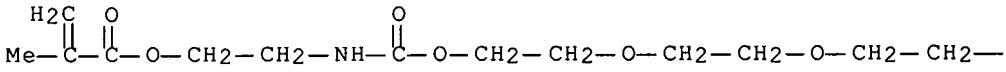
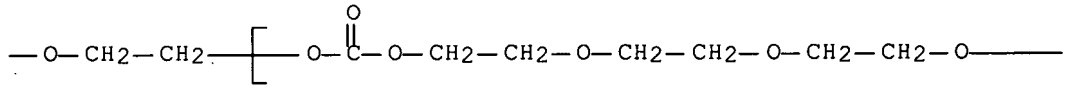


RN 312325-07-8 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl), α-(19-methyl-13,18-dioxo-3,6,9,12,16-pentaoxa-14-azaeicos-19-en-1-yl)-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



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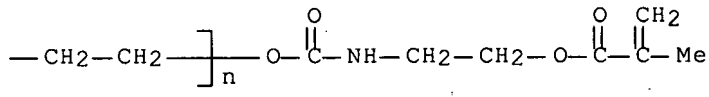
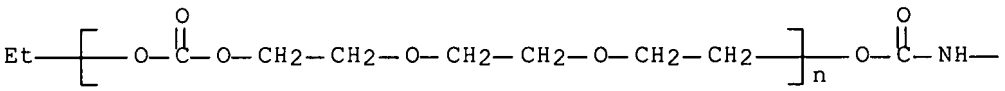


RN 312325-08-9 HCAPLUS
CN Poly(oxycarbonyloxy-1,2-ethanediyloxy-1,2-ethanediyloxy-1,2-ethanediyl), α-ethyl-ω-[[[[2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl]amino]carbonyl]oxy]- (9CI) (CA INDEX NAME)

PAGE 1-A



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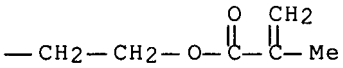
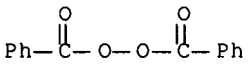


IT **94-36-0**, Benzoyl peroxide, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polymerizable** compound and solid **polymer** **electrolyte** using same for **batteries** and elec. double layer capacitors)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Mitsui Chem Inc	1999			JP 11140176 A	HCAPLUS
Nippon Oil Co Ltd	1996			JP 08295715 A	HCAPLUS
Takeuchi, M	1997			US 5597661 A	

L135 ANSWER 21 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:819240 HCAPLUS Full-text
DN 133:351062
TI Covalently and physically crosslinked **polymer** network **polyelectrolytes** and production method thereof
IN Yamamoto, Toru; Murata, Toshihide
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000319531	A	20001121	JP 1999-134821	19990514 <--
PRAI	JP 1999-134821		19990514 <--		

AB Title **polyelectrolytes** comprise covalently and phys. crosslinked **polymer** networks and charge carriers and are useful for nonaq. **electrolyte** secondary **batteries**. Thus, a thermosetting resin precursor comprising oligomeric epoxy resin **acrylate** 50, pentaerythritol **triacrylate** 8, and benzoyl peroxide 2 part was mixed with 5 parts **acrylonitrile-methacrylic** acid **copolymer** (mol ratio 97:3) 15, LiBF4 20, ethylene carbonate 100, and propylene carbonate 50 parts and cured at 120° for 60 min between two stainless steel plates to give a

polyelectrolyte giving a lithium **battery** with good heat resistance and high-rate discharge and capacity retaining characteristics.

IC ICM C08L0101-16
ICS C08J0007-00; H01B0001-06; **H01M0010-40**

CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): **52**

ST polyelectrolyte covalently phys crosslinked nonaq secondary **battery**

IT Epoxy resins, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(**acrylates**, alicyclic, crosslinked with pentaerythritol **triacrylate**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT Epoxy resins, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(crosslinked with pentaerythritol **triacrylate**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT **Secondary batteries**
(lithium; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT Polyurethanes, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(polyester-, **acrylic**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT Polyesters, preparation
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(**polymers** with **acrylic** acid hydroxy derivs. and tolylene diisocyanate; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT **Battery electrolytes**
Crosslinking catalysts
Electrolytes
Polyelectrolytes
(preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT **Fluoropolymers**, uses
Polyoxyalkylenes, uses
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT Interpenetrating **polymer** networks
(semi-interpenetrating; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT Plastics, uses
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(thermoplastics; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

IT Plastics, uses
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(thermosetting; preparation of covalently and phys. crosslinked

polymer network polyelectrolytes useful for batteries)

IT 3524-68-3
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 94-36-0, Benzoyl peroxide, uses 3849-34-1, Butyl peroxide 24650-42-8
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 90076-65-6 155812-81-0
RL: DEV (Device component use); USES (Uses)
(electrolyte; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

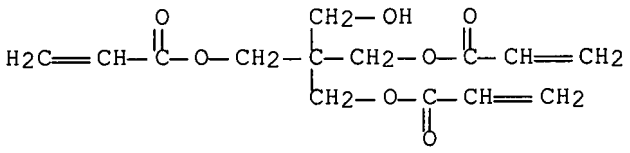
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate
RL: DEV (Device component use); USES (Uses)
(polar solvent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 79-10-7DP, Acrylic acid, esters, polymers 79-41-4DP, Methacrylic acid, esters, polymers with pentaerythritol triacrylate 3524-68-3DP, Pentaerythritol triacrylate, polymers with (meth) acrylates 26471-62-5DP, Tolylene diisocyanate, polymers with acrylic acid hydroxy derivs. and polyesters 101465-21-8P 129914-67-6P, Polyethylene glycol diacrylate-trimethylolpropane triacrylate copolymer 305834-74-6P 305834-75-7P
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

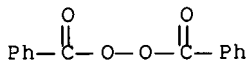
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 24980-62-9, Acrylonitrile -vinyl acetate copolymer 25014-41-9, Acrylonitrile homopolymer 25214-69-1, Acrylic acid-acrylonitrile copolymer 25322-68-3 25749-57-9, Acrylonitrile-methacrylic acid copolymer 26778-26-7, Acrylamide-ethylene oxide copolymer
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)
(preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

IT 3524-68-3
RL: MOA (Modifier or additive use); USES (Uses)
(crosslinking agent; preparation of covalently and phys. crosslinked polymer network polyelectrolytes useful for batteries)

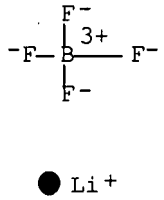
RN 3524-68-3 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



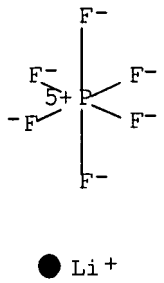
IT **94-36-0**, Benzoyl peroxide, uses
RL: CAT (Catalyst use); USES (Uses)
(crosslinking catalyst; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



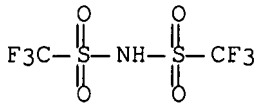
IT **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **90076-65-6** **155812-81-0**
RL: DEV (Device component use); USES (Uses)
(**electrolyte**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



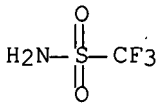
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

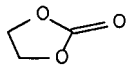


RN 155812-81-0 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)

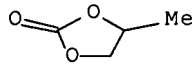


IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(polar **solvent**; preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



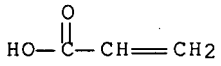
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



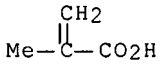
IT **79-10-7DP**, **Acrylic** acid, esters, **polymers**
79-41-4DP, **Methacrylic** acid, esters, **polymers**
with pentaerythritol **triacrylate 3524-68-3DP**,
Pentaerythritol **triacrylate**, **polymers** with (meth) **acrylates 101465-21-8P 129914-67-6P**,
Polyethylene glycol **diacrylate**-trimethylolpropane **triacrylate copolymer 305834-74-6P**
305834-75-7P

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

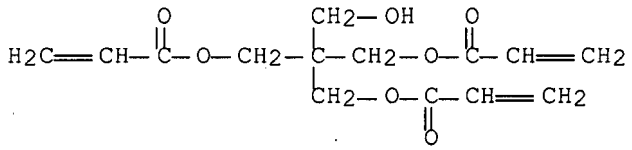
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



RN 79-41-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl- (CA INDEX NAME)



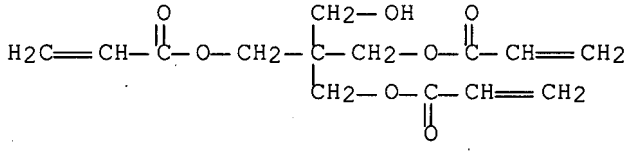
RN 3524-68-3 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-(hydroxymethyl)-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



RN 101465-21-8 HCAPLUS
CN 2-Propenoic acid, 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with 2-propenenitrile (9CI) (CA INDEX NAME)

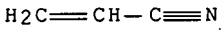
CM 1

CRN 3524-68-3
CMF C14 H18 O7



CM 2

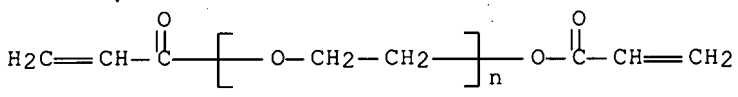
CRN 107-13-1
CMF C3 H3 N



RN 129914-67-6 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-ethyl-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester, polymer with α-(1-oxo-2-propen-1-yl)-ω-[(1-oxo-2-propen-1-yl)oxy]poly(oxy-1,2-ethanediyl) (CA INDEX NAME)

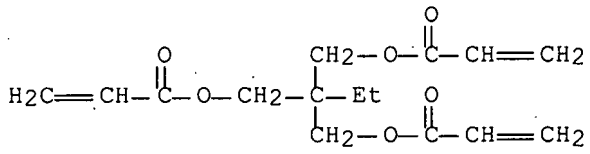
CM 1

CRN 26570-48-9
CMF (C2 H4 O)n C6 H6 O3
CCI PMS



CM 2

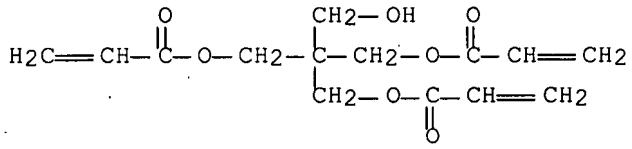
CRN 15625-89-5
CMF C15 H20 O6



RN 305834-74-6 HCAPLUS
CN 2-Propenoic acid, 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl ester, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 3524-68-3
CMF C14 H18 O7



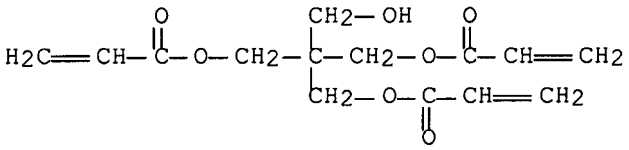
CM 2

CRN 75-21-8
CMF C2 H4 O

RN 305834-75-7 HCAPLUS
CN Hexanedioic acid, compd. with 1,6-hexanediamine (1:1), polymer with 2-(hydroxymethyl)-2-[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 3524-68-3
CMF C14 H18 O7

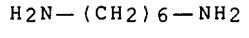


CM 2

CRN 3323-53-3
CMF C6 H16 N2 . C6 H10 O4

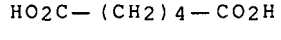
CM 3

CRN 124-09-4
CMF C6 H16 N2



CM 4

CRN 124-04-9
CMF C6 H10 O4



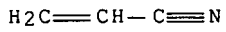
IT **25214-69-1, Acrylic acid-acrylonitrile copolymer 25749-57-9, Acrylonitrile-methacrylic acid copolymer**
RL: DEV (Device component use); POF (Polymer in formulation); USES (Uses)

(preparation of covalently and phys. crosslinked **polymer** network **polyelectrolytes** useful for **batteries**)

RN 25214-69-1 HCAPLUS
CN 2-Propenoic acid, polymer with 2-propenenitrile (CA INDEX NAME)

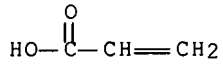
CM 1

CRN 107-13-1
CMF C3 H3 N



CM 2

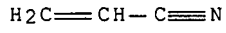
CRN 79-10-7
CMF C3 H4 O2



RN 25749-57-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, polymer with 2-propenenitrile (CA INDEX NAME)

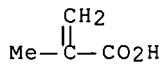
CM 1

CRN 107-13-1
CMF C3 H3 N



CM 2

CRN 79-41-4
CMF C4 H6 O2



L135 ANSWER 22 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN **2000:686820** HCAPLUS Full-text
DN 133:284087
TI High **polymer** solid **electrolyte**, its manufacture and electrochemical device

IN Amanokura, Hitoshi; Uehara, Hideaki; Watanabe, Masayoshi
PA Hitachi Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

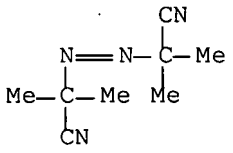
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000268871	A	20000929	JP 1999-75423	19990319 <--
PRAI JP 1999-75423		19990319 <--		

AB The high **polymer** solid **electrolyte** is a film, composed of **electrolyte** and ion conductive **polymer**, and contains electron conductive compds. in gradient distribution in the direction of thickness. The **electrolyte** is LiClO4, LiBF4, LiPF6, or LiN(CF3SO2)2, the ion conductive high **polymer** has alkylene oxide repeating units, and the electron conductive high **polymer** is polypyrrole or its derivative The electron conductive high **polymer** is formed by electrolysis **polymerization** of the monomers in the solid **electrolyte**. The high **polymer** solid **electrolyte** is used for manufacture of electrochem. devices.

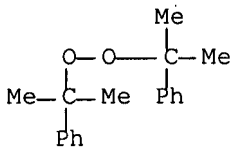
IC ICM **H01M0010-40**
ICS C08K0003-24; C08K0003-30; C08K0003-32; C08K0003-38; C08L0065-00; C08L0071-02; C08L0101-12; H01B0001-06
CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)
ST high **polymer** solid **electrolyte** electrochem device
IT Electric apparatus
(electrochem.; high **polymer** solid **electrolyte**, its manufacture and electrochem. device)
IT **Polymer electrolytes**
Solid electrolytes
(high **polymer** solid **electrolyte**, its manufacture and electrochem. device)
IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(with unsatd. terminal groups; high **polymer** solid **electrolyte**, its manufacture and electrochem. device)
IT **78-67-1**, Azobisisobutyronitrile **80-43-3**, Cumyl peroxide **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **110-02-1**, Thiophene 111-77-3, Diethylene glycol methyl ether 119-61-9, Benzophenone, uses **3290-92-4**, **Trimethylolpropanetrimethacrylate** 6175-45-7, 2,2-Diethoxyacetophenone **7791-03-9**, Lithium perchlorate 9011-17-0, Hexafluoropropylene-vinylidene fluoride **copolymer** **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **60506-81-2**, Dipentaerythritol **pentaacrylate** 89377-19-5, Poly(3-methylpyrrole) **90076-65-6**
RL: TEM (Technical or engineered material use); USES (Uses)
(high **polymer** solid **electrolyte**, its manufacture and electrochem. device)
IT 25322-68-3, Polyethylene oxide
RL: TEM (Technical or engineered material use); USES (Uses)
(with unsatd. terminal groups; high **polymer** solid **electrolyte**, its manufacture and electrochem. device)
IT **78-67-1**, Azobisisobutyronitrile **80-43-3**, Cumyl peroxide **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **110-02-1**, Thiophene **3290-92-4**, **Trimethylolpropanetrimethacrylate** **7791-03-9**, Lithium perchlorate **14283-07-9**, Lithium tetrafluoroborate **21324-40-3**, Lithium hexafluorophosphate **60506-81-2**,

Dipentaerythritol **pentaacrylate** 90076-65-6
RL: TEM (Technical or engineered material use); USES (Uses)
(high **polymer** solid **electrolyte**, its manufacture and electrochem. device)

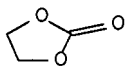
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



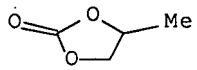
RN 80-43-3 HCAPLUS
CN Peroxide, bis(1-methyl-1-phenylethyl) (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)

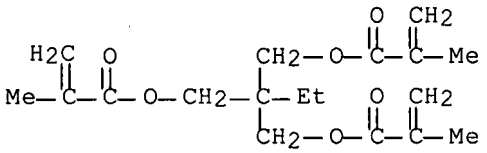


RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)

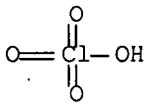


RN 110-02-1 HCAPLUS
CN Thiophene (CA INDEX NAME)

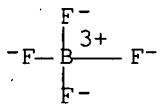
RN 3290-92-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 1,1'-[2-ethyl-2-[[(2-methyl-1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



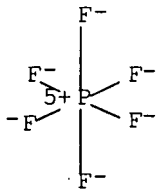
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



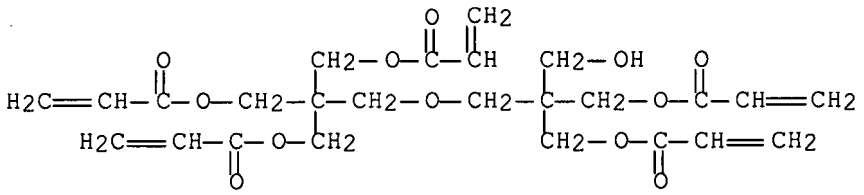
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



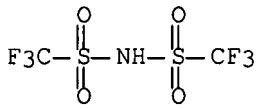
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 60506-81-2 HCAPLUS
CN 2-Propenoic acid, 1,1'-[2-[[3-hydroxy-2,2-bis[[(1-oxo-2-propen-1-yl)oxy]methyl]propoxy]methyl]-2-[[(1-oxo-2-propen-1-yl)oxy]methyl]-1,3-propanediyl] ester (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



● Li

L135 ANSWER 23 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2000:54126 HCAPLUS Full-text
DN 132:110584
TI Solid **polymer electrolyte** and preparation methods
IN Sanchez, Jean-Yves; Alloin, Fannie
PA Institut National Polytechnique de Grenoble, Fr.
SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DT **Patent**
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000003449	A2	20000120	WO 1999-FR1680	19990709 <--
	WO 2000003449	A3	20000413		
	W: CA, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	FR 2781932	A1	20000204	FR 1998-9385	19980710 <--
	FR 2781932	B1	20000901		
	CA 2302825	A1	20000120	CA 1999-2302825	19990709 <--
	EP 1018181	A2	20000712	EP 1999-929459	19990709 <--
	EP 1018181	B1	20061004		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, CY				
	JP 2002520786	T	20020709	JP 2000-559608	19990709 <--
	AT 341840	T	20061015	AT 1999-929459	19990709 <--
	US 6822065	B1	20041123	US 2000-508378	20000602 <--
PRAI	FR 1998-9385	A	19980710 <--		
	WO 1999-FR1680	W	19990709 <--		

AB The invention concerns a solid **polymer electrolyte** which comprises ≥1 **methacrylonitrile polymer** in the form: of a linear **homopolymer** with strong mass, reinforced or not; or a **homopolymer**, reinforced or not, made 3-dimensional by crosslinking; or a linear **copolymer** with strong mass or made 3-dimensional by crosslinking, in particular by incorporation of ≥1

crosslinkable comonomer. The invention is useful in production of **batteries**, high-load capacitors,and electrochrome systems.

IC ICM **H01M0010-40**
ICS C08F0020-44

CC 52-2 (**Electrochemical**, Radiational, and Thermal Energy Technology)

ST solid **polymer electrolyte** lithium **battery**;
elec capacitor solid **polymer electrolyte**;
electrochrome system solid **polymer electrolyte**

IT **Primary batteries**
Secondary batteries
(lithium; solid **polymer electrolyte** for)

IT Capacitors
(solid **polymer electrolyte** for)

IT **Electrolytes**
(**solid polymer electrolyte** for
batteries, elec. capacitors, and electrochrome systems)

IT **78-67-1**, Azobisisobutyronitrile 24650-42-8, Irgacure I 651
RL: CAT (Catalyst use); USES (Uses)
(catalyst in solid **polymer electrolyte**)

IT 110-26-9
RL: CAT (Catalyst use); USES (Uses)
(crosslinking agent in solid **polymer electrolyte**)

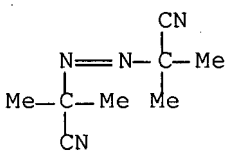
IT 255875-17-3 774209-62-0 845828-65-1
RL: TEM (Technical or engineered material use); USES (Uses)
(diblock and triblock; in solid **polymer electrolyte**
)

IT 126-98-7 7631-86-9, Silica, uses 25067-61-2,
Polymethacrylonitrile 33825-95-5 **33897-34-6**,
Hydroxyethyl **methacrylate-methacrylonitrile**
copolymer 33961-16-9, **Methacrylonitrile-styrene**
copolymer 54474-20-3, Glycidyl **methacrylate-**
methacrylonitrile copolymer 87105-87-1
93058-88-9 **154588-16-6 155620-12-5 157016-02-9**
255875-12-8 255875-13-9 255875-14-0
255875-15-1 255875-16-2 255875-18-4
255875-19-5 255875-20-8 255875-21-9
255875-22-0 255875-23-1
RL: TEM (Technical or engineered material use); USES (Uses)
(in solid **polymer electrolyte**)

IT **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene
carbonate **108-32-7**, Propylene carbonate 110-71-4
7791-03-9 14283-07-9, Lithium tetrafluoroborate
18424-17-4, Lithium hexafluoroantimonate **21324-40-3**,
Lithium hexafluorophosphate **29935-35-1**, Lithium
hexafluoroarsenate
RL: TEM (Technical or engineered material use); USES (Uses)
(**solvent** in solid **polymer electrolyte**)

IT **78-67-1**, Azobisisobutyronitrile
RL: CAT (Catalyst use); USES (Uses)
(catalyst in solid **polymer electrolyte**)

RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)

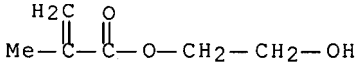


IT 33897-34-6, Hydroxyethyl **methacrylate-methacrylonitrile copolymer** 54474-20-3, Glycidyl **methacrylate-methacrylonitrile copolymer** 87105-87-1 154588-16-6 155620-12-5 157016-02-9 255875-12-8 255875-13-9 255875-14-0 255875-15-1 255875-16-2 255875-18-4 255875-19-5 255875-20-8 255875-21-9 255875-22-0 255875-23-1
RL: TEM (Technical or engineered material use); USES (Uses)
(in solid **polymer electrolyte**)

RN 33897-34-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

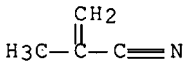
CM 1

CRN 868-77-9
CMF C6 H10 O3



CM 2

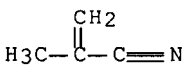
CRN 126-98-7
CMF C4 H5 N



RN 54474-20-3 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, oxiranylmethyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

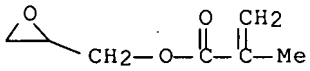
CM 1

CRN 126-98-7
CMF C4 H5 N



CM 2

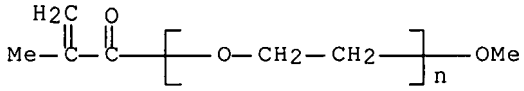
CRN 106-91-2
CMF C7 H10 O3



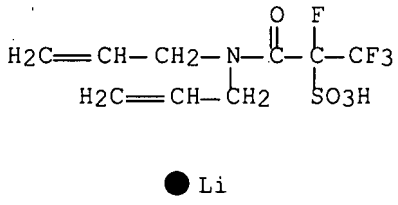
RN 87105-87-1 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-methoxy-, homopolymer (CA INDEX NAME)

CM 1

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



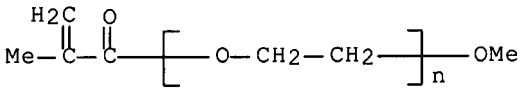
RN 154588-16-6 HCAPLUS
CN 2-Propanesulfonic acid, 3-(di-2-propenylamino)-1,1,1,2-tetrafluoro-3-oxo-, lithium salt (9CI) (CA INDEX NAME)



RN 155620-12-5 HCAPLUS
CN 2-Propenenitrile, 2-methyl-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

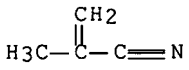
CM 1

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS

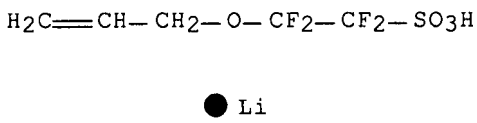


CM 2

CRN 126-98-7
CMF C4 H5 N



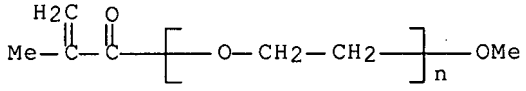
RN 157016-02-9 HCAPLUS
CN Ethanesulfonic acid, 1,1,2,2-tetrafluoro-2-(2-propenyloxy)-, lithium salt (9CI) (CA INDEX NAME)



RN 255875-12-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

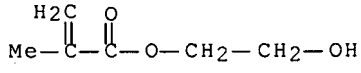
CM 1

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



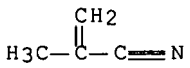
CM 2

CRN 868-77-9
CMF C6 H10 O3



CM 3

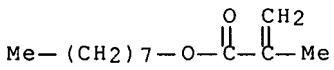
CRN 126-98-7
CMF C4 H5 N



RN 255875-13-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 2-methyl-2-propenenitrile and octyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

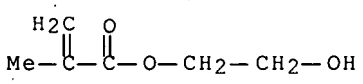
CM 1

CRN 2157-01-9
CMF C12 H22 O2



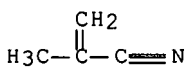
CM 2

CRN 868-77-9
CMF C6 H10 O3



CM 3

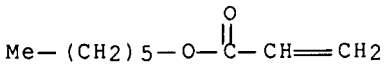
CRN 126-98-7
CMF C4 H5 N



RN 255875-14-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with hexyl 2-propenoate and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

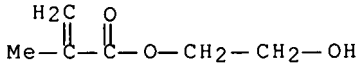
CM 1

CRN 2499-95-8
CMF C9 H16 O2



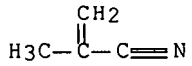
CM 2

CRN 868-77-9
CMF C6 H10 O3



CM 3

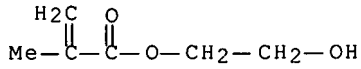
CRN 126-98-7
CMF C4 H5 N



RN 255875-15-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, butyl ester, polymer with 2-hydroxyethyl 2-methyl-2-propenoate and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

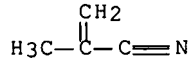
CM 1

CRN 868-77-9
CMF C6 H10 O3



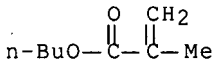
CM 2

CRN 126-98-7
CMF C4 H5 N



CM 3

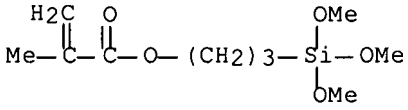
CRN 97-88-1
CMF C8 H14 O2



RN 255875-16-2 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 3-(trimethoxysilyl)propyl ester, polymer with 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

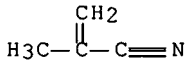
CM 1

CRN 2530-85-0
CMF C10 H20 O5 Si



CM 2

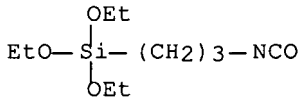
CRN 126-98-7
CMF C4 H5 N



RN 255875-18-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 2-methyl-2-propenenitrile and triethoxy(3-isocyanatopropyl)silane (9CI) (CA INDEX NAME)

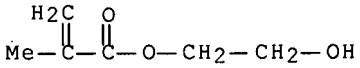
CM 1

CRN 24801-88-5
CMF C10 H21 N O4 Si



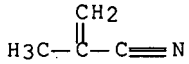
CM 2

CRN 868-77-9
CMF C6 H10 O3



CM 3

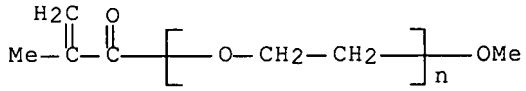
CRN 126-98-7
CMF C4 H5 N



RN 255875-19-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane, α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

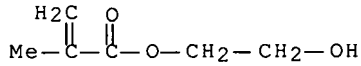
CM 1

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



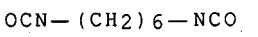
CM 2

CRN 868-77-9
CMF C6 H10 O3



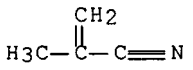
CM 3

CRN 822-06-0
CMF C8 H12 N2 O2



CM 4

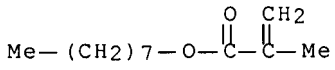
CRN 126-98-7
CMF C4 H5 N



RN 255875-20-8 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane, 2-methyl-2-propenenitrile and octyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

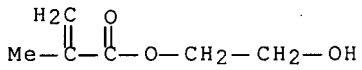
CM 1

CRN 2157-01-9
CMF C12 H22 O2



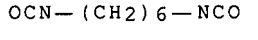
CM 2

CRN 868-77-9
CMF C6 H10 O3



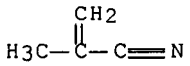
CM 3

CRN 822-06-0
CMF C8 H12 N2 O2



CM 4

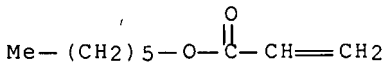
CRN 126-98-7
CMF C4 H5 N



RN 255875-21-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane, hexyl 2-propenoate and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

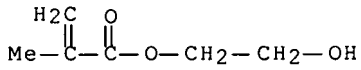
CM 1

CRN 2499-95-8
CMF C9 H16 O2



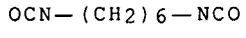
CM 2

CRN 868-77-9
CMF C6 H10 O3



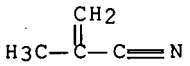
CM 3

CRN 822-06-0
CMF C8 H12 N2 O2



CM 4

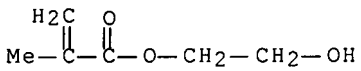
CRN 126-98-7
CMF C4 H5 N



RN 255875-22-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with 1,6-diisocyanatohexane and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

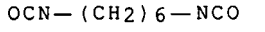
CM 1

CRN 868-77-9
CMF C6 H10 O3



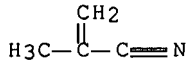
CM 2

CRN 822-06-0
CMF C8 H12 N2 O2



CM 3

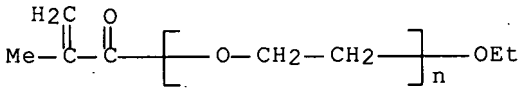
CRN 126-98-7
CMF C4 H5 N



RN 255875-23-1 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-ethoxypoly(oxy-1,2-ethanediyl) and 2-methyl-2-propenenitrile (9CI) (CA INDEX NAME)

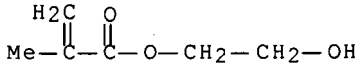
CM 1

CRN 35625-93-5
CMF (C2 H4 O)n C6 H10 O2
CCI PMS



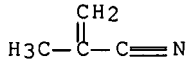
CM 2

CRN 868-77-9
CMF C6 H10 O3



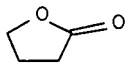
CM 3

CRN 126-98-7
CMF C4 H5 N

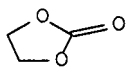


IT **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate **7791-03-9** **14283-07-9**, Lithium tetrafluoroborate **18424-17-4**, Lithium hexafluoroantimonate **21324-40-3**, Lithium hexafluorophosphate **29935-35-1**, Lithium hexafluoroarsenate
RL: TEM (Technical or engineered material use); USES (Uses)
(**solvent** in solid **polymer electrolyte**)

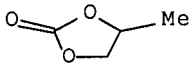
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



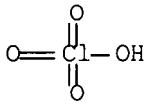
RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



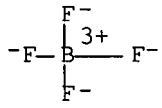
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



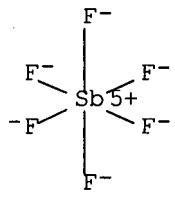
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



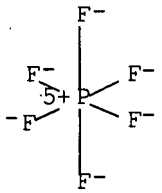
RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



RN 18424-17-4 HCAPLUS
CN Antimonate(1-), hexafluoro-, lithium (1:1), (OC-6-11)- (CA INDEX NAME)

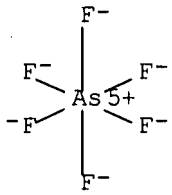


RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



● Li+

L135 ANSWER 24 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1998:685294 HCAPLUS Full-text
DN 129:318659
TI **Polymer** solid **electrolytes**, their manufacture, and lithium secondary **batteries** using the **electrolytes**
IN Lee, Hakaru Fukashi; Shigeru, Akira Hyun; Lee, Susumu Kaori
PA **Samsung Electronics Co., Ltd.**, S. Korea
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10283839	A	19981023	JP 1997-260487	19970925 <--
	JP 2896361	B2	19990531		
	US 5965300	A	19991012	US 1997-921279	19970829 <--
PRAI	KR 1997-13286	A	19970410 <--		
	KR 1997-30816	A	19970703 <--		

AB The **electrolytes** consist of (A) mediums comprising (a) matrix **polymers** made of CH2:CR1CONR2R3 (I; R1 = H, Me; R2, R3 = H, Me, Et, Pr, C3H6NR'2, CH2CH2OH; R' = C1-5 alkyl) and CH2:CR4CO(OCH2CH2)nOCOCR5:CH2 (II; R4, R5 = H, Me; n = 3-30), (b) **polymerization** initiators, (c) inorg. salts, and (d) **solvents** and (B) vinylidene fluoride **polymers** and/or N,N- **diethylacrylamide** (III). The **electrolytes** are manufactured by adding **electrolytic** solns. comprising II, **polymerization** initiators, inorg. salts, and **solvents** to I, adding vinyldiene fluoride **polymers** and/or III to the resulting mixts., and **polymerizing** the components in the mixts. The electrolytes show prevention of leaking of electrolytic solns. and improved ion conductivity and mech. strength.
IC ICM H01B0001-12

ICS C08L0027-16; C08L0033-26; H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 35, 38
ST polymer solid electrolyte lithium secondary battery; soln leak prevention polymer solid electrolyte; polyoxyethylene diacrylate acrylic monomer polymer matrix; vinylidene fluoride diethylacylamide polymer solid electrolyte
IT Secondary batteries
Solid electrolytes
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT Polymer blends
RL: TEM (Technical or engineered material use); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT 26570-48-9
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(crosslinking agents; in solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT 78-67-1, AIBN 100-86-7, 2-Hydroxy-2-methyl-1-phenylpropane 574-09-4, Benzoin ethyl ether 947-19-3, 1-Hydroxycyclohexyl phenyl ketone 4419-11-8 15545-97-8 24650-42-8 69673-85-4, 1-(4-Isopropylphenyl)-2-hydroxy-2-methylpropan-1-one
RL: CAT (Catalyst use); USES (Uses)
(polymerization initiators; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT 214960-05-1P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 214960-07-3
RL: MOA (Modifier or additive use); USES (Uses)
(solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or

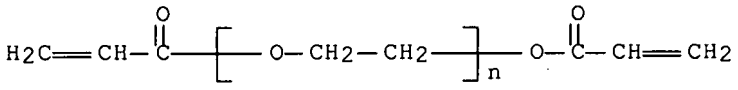
diethylacrylamide for lithium secondary batteries)

IT 67-68-5, DMSO, uses 68-12-2, DMF, uses 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7 109-99-9, THF, uses 110-71-4 127-19-5, N,N-Dimethylacetamide 616-38-6, Dimethyl carbonate 617-84-5, N,N-Diethylformamide 646-06-0, 1,3-Dioxolane 685-91-6, N,N-Diethylacetamide 24991-55-7, Polyethylene glycol dimethyl ether
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)

IT 26570-48-9
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(crosslinking agents; in solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)

RN 26570-48-9 HCAPLUS

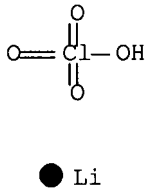
CN Poly(oxy-1,2-ethanediyl), α-(1-oxo-2-propen-1-yl)-ω-[(1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



IT 7791-03-9, Lithium perchlorate 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte; solid electrolytes containing acrylic polymer matrix and vinylidene fluoride polymers and/or diethylacrylamide for lithium secondary batteries)

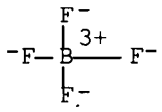
RN 7791-03-9 HCAPLUS

CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)

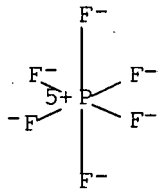


RN 14283-07-9 HCAPLUS

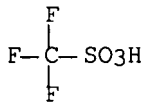
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



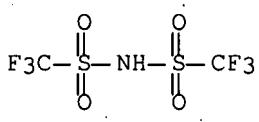
RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (1:1) (CA INDEX NAME)



RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



RN 90076-65-6 HCAPLUS
CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)

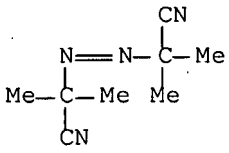


IT **78-67-1**, AIBN
RL: CAT (Catalyst use); USES (Uses)
(**polymerization** initiators; solid **electrolytes** containing **acrylic polymer** matrix and vinylidene fluoride

polymers and/or **diethylacrylamide** for lithium secondary **batteries**)

RN 78-67-1 HCAPLUS

CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



IT **214960-05-1P**

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(solid **electrolytes** containing **acrylic polymer** matrix and vinylidene fluoride **polymers** and/or **diethylacrylamide** for lithium secondary **batteries**)

RN 214960-05-1 HCAPLUS

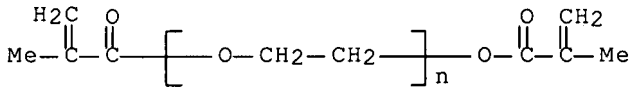
CN 2-Propenamide, N,N-diethyl-, polymer with N-(1-methylethyl)-2-propenamide and α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

CM 1

CRN 25852-47-5

CMF (C2 H4 O)n C8 H10 O3

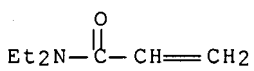
CCI PMS



CM 2

CRN 2675-94-7

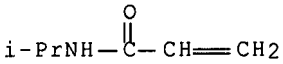
CMF C7 H13 N O



CM 3

CRN 2210-25-5

CMF C6 H11 N O



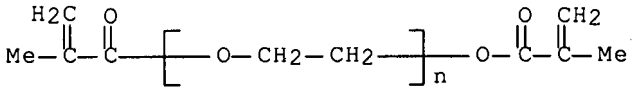
IT **214960-07-3**
RL: MOA (Modifier or additive use); USES (Uses)
(solid **electrolytes** containing **acrylic polymer** matrix and vinylidene fluoride **polymers** and/or **diethylacrylamide** for lithium secondary **batteries**)

RN 214960-07-3 HCAPLUS

CN 2-Propenamide, N,N-diethyl-, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-[(2-methyl-1-oxo-2-propenyl)oxy]poly(oxy-1,2-ethanediyl) and 4-(1-oxo-2-propenyl)morpholine (9CI) (CA INDEX NAME)

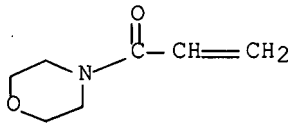
CM 1

CRN 25852-47-5
CMF (C2 H4 O)n C8 H10 O3
CCI PMS



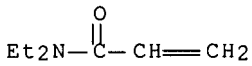
CM 2

CRN 5117-12-4
CMF C7 H11 N O2



CM 3

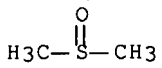
CRN 2675-94-7
CMF C7 H13 N O



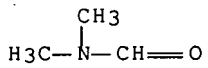
IT **67-68-5**, DMSO, uses **68-12-2**, DMF, uses **96-48-0**, γ-Butyrolactone **96-49-1**, Ethylene carbonate **108-32-7** **109-99-9**, THF, uses **127-19-5**, N,N-Dimethylacetamide **646-06-0**, 1,3-Dioxolane
RL: NUU (Other use, unclassified); USES (Uses)

(**solvent**; solid **electrolytes** containing **acrylic polymer** matrix and vinylidene fluoride **polymers** and/or **diethylacrylamide** for lithium secondary **batteries**)

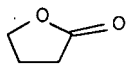
RN 67-68-5 HCAPLUS
CN Methane, 1,1'-sulfinylbis- (CA INDEX NAME)



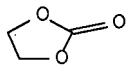
RN 68-12-2 HCAPLUS
CN Formamide, N,N-dimethyl- (CA INDEX NAME)



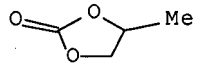
RN 96-48-0 HCAPLUS
CN 2(3H)-Furanone, dihydro- (CA INDEX NAME)



RN 96-49-1 HCAPLUS
CN 1,3-Dioxolan-2-one (CA INDEX NAME)



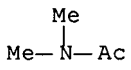
RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



RN 109-99-9 HCAPLUS
CN Furan, tetrahydro- (CA INDEX NAME)

RN 127-19-5 HCAPLUS

CN Acetamide, N,N-dimethyl- (CA INDEX NAME)



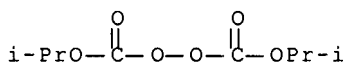
RN 646-06-0 HCAPLUS
CN 1,3-Dioxolane (CA INDEX NAME)

L135 ANSWER 25 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1997:732370 HCAPLUS Full-text
DN **128:35554**
TI Allyl carbonate **copolymers**, their manufacture, and **polymeric** solid **electrolytes**
IN Watanabe, Masayoshi; Yokoyama, Keiichi; Sasano, Takako
PA Mitsui Petrochemical Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09291123	A	19971111	JP 1996-107346	19960426 <--
	JP 3746324	B2	20060215		
	US 5977277	A	19991102	US 1997-845434	19970425 <--
PRAI	JP 1995-215058	A	19950823 <--		
	JP 1995-215059	A	19950823 <--		
	JP 1995-231864	A	19950908 <--		
	JP 1995-231865	A	19950908 <--		
	JP 1995-290192	A	19951108 <--		
	JP 1995-290193	A	19951108 <--		
	JP 1996-107346	A	19960426 <--		

AB Tilte copolymer contain units derived from CH2:**CR1CH2OCOO(CR2CH2O)nCOOCH2CR3**:CH2 (I; R1-3 = H, Me; n = 1-20) and units derived from CH2:CR4OCOOR5 (II; R4 = H, Me; R5 = C1-4 alkyl, CH2CR6:CH2; R6 = H, Me). The copolymers are manufactured by polymerizing I with II in the presence of diisopropyl peroxydicarbonate (III). Polymeric solid hydrolytes, useful for primary **batteries**, secondary **batteries**, condensers, etc., comprise the copolymers (as matrixes) and alkali metal salts and optionally further contain nonaq. **solvents** to form gels. Thus, 1.0 g diethylene glycol diallyl dicarbonate was polymerized with 11.0 g allyl Me carbonate in the presence of 1.4 g III and 0.6 g LiN(CF3SO2)2 and then cure to show ion conductivity 2.3 + 10-7 S/cm at 100° and 8.4 + 10-8 S/cm at 80°.
IC ICM C08F0218-00
ICS C08F0290-06; C08K0003-24; C08L0031-00
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 35
ST allyl carbonate **copolymer polymeric** solid **electrolyte**; alkali metal allyl carbonate **copolymer electrolyte**; diisopropyl preoxydicarbonate polymn catalyst allyl

carbonate
IT **Polymerization** catalysts
Solid electrolytes
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT Polycarbonates, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT Alkali metal salts
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT **105-64-6**, Diisopropyl peroxydicarbonate
RL: CAT (Catalyst use); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT 188779-82-0P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT **90076-65-6**, Lithium bis(trifluoromethylsulfonyl)imide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**solvents**; **polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
IT **105-64-6**, Diisopropyl peroxydicarbonate
RL: CAT (Catalyst use); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)
RN 105-64-6 HCAPLUS
CN Peroxydicarbonic acid, C,C'-bis(1-methylethyl) ester (CA INDEX NAME)

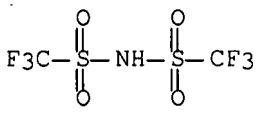


IT **90076-65-6**, Lithium bis(trifluoromethylsulfonyl)imide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**polymeric** solid **electrolytes** containing allyl

carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)

RN 90076-65-6 HCAPLUS

CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (1:1) (CA INDEX NAME)



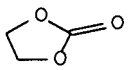
IT **96-49-1**, Ethylene carbonate **108-32-7**, Propylene carbonate

RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)

(**solvents**; **polymeric** solid **electrolytes** containing allyl carbonate **copolymers**, alkali metal salts, and optionally nonaq. **solvents**)

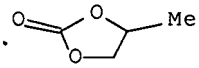
RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (CA INDEX NAME)



RN 108-32-7 HCAPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (CA INDEX NAME)



L135 ANSWER 26 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN

AN **1993:31282** HCAPLUS Full-text

DN 118:31282

TI Solid **polymer electrolytes**

IN Braun, Ruediger; Meisel, Thomas; Kraenzler, Thomas; Scherber, Werner

PA Dornier GmbH, Germany

SO Eur. Pat. Appl., 5 pp.
CODEN: EPXXDW

DT **Patent**

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 499115	A1	19920819	EP 1992-101764	19920204 <--
	EP 499115	B1	19960501		
	R: DE, FR, GB, IT				
	JP 05098114	A	19930420	JP 1992-22681	19920207 <--

PRAI DE 1991-4104008 A 19910209 <--

AB **Polymeric** solid **electrolytes** having heightened cohesive and adhesive properties and well suited to use in electrochromic systems comprise crosslinked or uncrosslinked homo- or **copolymers** formed from **acrylate** or **methacrylate** monomers having ethylene oxide side chains described by the general formula (CH2CH2-O)n (n = 2-15) and incorporating ≤10 weight% of an organofunctional silane, and with ≤40 weight% of the **electrolyte** comprising ≥1 (dissolved in the **polymer**) conductive salt having a cation selected from Li, Na, K, or Ag. Use in primary and secondary **batteries** is also indicated.

IC ICM H01B0001-20
ICS H01B0001-12; **H01M0006-18**

CC 76-2 (**Electric** Phenomena)
Section cross-reference(s): 38, 52, 73, 74

ST electrochromic system **polymer electrolyte**; **battery polymer electrolyte**

IT **Battery electrolytes**
(**polymeric**)

IT **Electrolytes**
(**polymeric**, for electrochromic systems)

IT Optical imaging devices
(electrochromic, solid **polymer electrolytes** for)

IT 95-14-7, 1H-Benzotriazole 128-37-0, 2,6-Di-tert-butyl-p-cresol, uses 1137-42-4, p-Hydroxybenzophenone **2044-56-6 2923-28-6 2926-27-4 2926-30-9** 7601-89-0, Sodium perchlorate 7778-74-7, Potassium perchlorate **7791-03-9**, Lithium perchlorate 13755-29-8 14075-53-7 **14283-07-9 33454-82-9**
RL: USES (Uses)
(**electrolytes** based on **polymers** containing, for electrochromic systems)

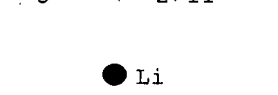
IT **25249-16-5 25852-47-5 30398-79-9**
RL: USES (Uses)
(electrolytes based on, for electrochromic systems)

IT **94-36-0**, Benzoyl peroxide, uses 5457-66-9 16474-43-4 145068-19-5, 2,2'-Azobis-(2-methyl-propionic acid nitrile)
RL: USES (Uses)
(in **polymer electrolyte** preparation)

IT **2044-56-6 2923-28-6 2926-27-4 2926-30-9 7791-03-9**, Lithium perchlorate **14283-07-9 33454-82-9**
RL: USES (Uses)
(**electrolytes** based on **polymers** containing, for electrochromic systems)

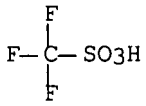
RN 2044-56-6 HCAPLUS

CN Sulfuric acid, monododecyl ester, lithium salt (1:1) (CA INDEX NAME)



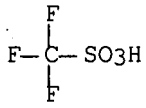
RN 2923-28-6 HCAPLUS

CN Methanesulfonic acid, 1,1,1-trifluoro-, silver(1+) salt (1:1) (CA INDEX NAME)



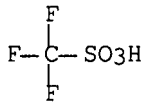
● Ag(I)

RN 2926-27-4 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, potassium salt (1:1) (CA INDEX NAME)



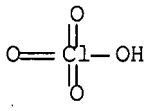
● K

RN 2926-30-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, sodium salt (1:1) (CA INDEX NAME)



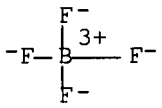
● Na

RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)

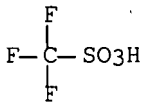


● Li

RN 14283-07-9 HCAPLUS
CN Borate(1-), tetrafluoro-, lithium (1:1) (CA INDEX NAME)



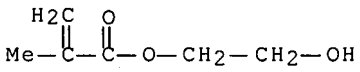
RN 33454-82-9 HCAPLUS
CN Methanesulfonic acid, 1,1,1-trifluoro-, lithium salt (1:1) (CA INDEX NAME)



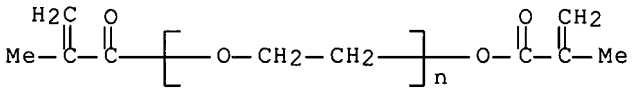
IT **25249-16-5 25852-47-5 30398-79-9**
RL: USES (Uses)
(electrolytes based on, for electrochromic systems)
RN 25249-16-5 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 868-77-9
CMF C6 H10 O3



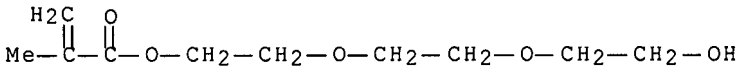
RN 25852-47-5 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-(2-methyl-1-oxo-2-propen-1-yl)-ω-[(2-methyl-1-oxo-2-propen-1-yl)oxy]- (CA INDEX NAME)



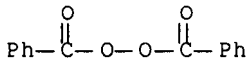
RN 30398-79-9 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, 2-[2-(2-hydroxyethoxy)ethoxy]ethyl ester, homopolymer (CA INDEX NAME)

CM 1

CRN 2351-42-0
CMF C10 H18 O5



IT **94-36-0**, Benzoyl peroxide, uses
RL: USES (Uses)
(in **polymer electrolyte** preparation)
RN 94-36-0 HCAPLUS
CN Peroxide, dibenzoyl (CA INDEX NAME)



L135 ANSWER 27 OF 27 HCAPLUS COPYRIGHT 2007 ACS on STN
AN **1986:415981** HCAPLUS Full-text
DN 105:15981
TI Poly[lithium **methacrylate**-co-oligo(oxyethylene) **methacrylate**] as a solid electrolyte with high ionic conductivity
AU Kobayashi, Norihisa; Uchiyama, Masahiro; Tsuchida, Eishun
CS Dep. Polym. Chem., Waseda Univ., Tokyo, 160, Japan
SO Solid State Ionics (**1985**), 17(4), 307-11
CODEN: SSIOD3; ISSN: 0167-2738
DT Journal
LA English
AB Poly[lihtium **methacrylate**-co-oligo(oxyethylene) **methacrylate**] film was prepared as a **polymeric** solid **electrolyte** which showed a Li ionic conductivity of 2 + 10-7 (S/cm). This film containts no organic plasticizer nor low-mol. weight Li salts and was shown to be a single-ion conductor in the solid state. Li+ ionic conductivity was deeply influenced by the glass transition temperature and Li **methacrylate** content of the film. A rechargeable **battery** composed of metallic Li/this film/graphite showed better characteristics than any previously reported systems using **polymeric** solid **electrolytes**.
CC 76-2 (**Electric** Phenomena)
Section cross-reference(s): 36
ST lithium **methacrylate polymer electrolyte**; **oligooxyethylenemethacrylate** polymer cond; **oxyethylenemethacrylate** polymer cond
IT **Batteries**, **primary**
(from poly[lithium **methacrylate**-oligo(oxyethylene) **methacrylate**])
IT Polymerization
(of lithium **methacrylate** with oligo(oxyethylene) **methacrylate** for ionic conductors)
IT Electric conductors
(ionic, from poly[lithium **methacrylate**-oligo(**oxyethylenemethacrylate**)])
IT Electric conductivity and conduction
(ionic, in poly[lithium **methacrylate**-co-oligo(oxyethylene) **methacrylate**] films)
IT Electric conductivity and conduction

(ionic, of poly[lithium **methacrylate**-oligo(oxyethylene) **methacrylate**])

IT **78-67-1 7791-03-9 13234-23-6 25179-23-1**
RL: USES (Uses)
(in ionic conductor polymer preparation)

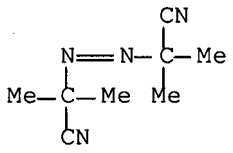
IT **103285-01-4P**
RL: PREP (Preparation)
(preparation of, as ionic conductor)

IT **102814-54-0**
RL: TEM (Technical or engineered material use); USES (Uses)
(solid electrolyte, with high ionic conductivity)

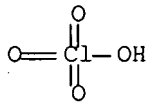
IT **17341-24-1**, properties
RL: PRP (Properties)
(transport number of, in lithium **methacrylate**-oligo(oxyethylene) **methacrylate** copolymer)

IT **78-67-1 7791-03-9 13234-23-6 25179-23-1**
RL: USES (Uses)
(in ionic conductor polymer preparation)

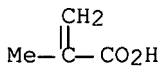
RN 78-67-1 HCAPLUS
CN Propanenitrile, 2,2'-(1,2-diazenediyl)bis[2-methyl- (CA INDEX NAME)



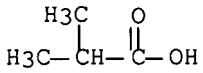
RN 7791-03-9 HCAPLUS
CN Perchloric acid, lithium salt (1:1) (CA INDEX NAME)



RN 13234-23-6 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, lithium salt (1:1) (CA INDEX NAME)



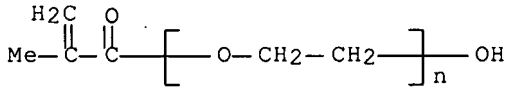
RN 25179-23-1 HCAPLUS
CN Propanoic acid, 2-methyl-, lithium salt (9CI) (CA INDEX NAME)



IT 103285-01-4P
RL: PREP (Preparation)
(preparation of, as ionic conductor)
RN 103285-01-4 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, lithium salt, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-hydroxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

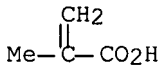
CM 1

CRN 25736-86-1
CMF (C2 H4 O)n C4 H6 O2
CCI PMS



CM 2

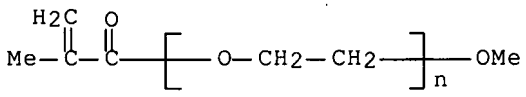
CRN 13234-23-6
CMF C4 H6 O2 . Li



IT 102814-54-0
RL: TEM (Technical or engineered material use); USES (Uses)
(solid electrolyte, with high ionic conductivity)
RN 102814-54-0 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, lithium salt, polymer with α-(2-methyl-1-oxo-2-propenyl)-ω-methoxypoly(oxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

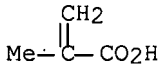
CM 1

CRN 26915-72-0
CMF (C2 H4 O)n C5 H8 O2
CCI PMS



CM 2

CRN 13234-23-6
CMF C4 H6 O2 . Li



IT **17341-24-1**, properties
RL: PRP (Properties)
(transport number of, in lithium **methacrylate**-oligo(oxyethylene) **methacrylate** copolymer)
RN 17341-24-1 HCAPLUS
CN Lithium, ion (Li1+) (CA INDEX NAME)

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